ORDER NO. SD8012-1817

Service Manual

Space Dimension Controller

SH-8030

[E], [EG], [EK], [XL],
[XA], [EF], [EH], [EB],
[EI]

SH-8030(K)

[E], [EG], [XL],
[XA], [EH]

Areas

- * [E] and [EG] are available in Scandinavia and European except United Kingdom, France, Holland, Belgium and Italy.
- * [EK] is available in United Kingdom.
- * [XL] is available in Australia.
- * [XA] is available in Asia, Latin America, Middle East and Africa.
- * [EF] is available in France.
- * [EH] is available in Holland.
- * [EB] is available in Belgium.
- * [EI] is available in Italy.

- * The cabinet and front panel are available in black color and silver types.
- * The black type model is provided with (K) in the service manual.

TECHNICAL SPECIFICATIONS (Specifications are subject to change without notice for further improvement.)

(DIN 45 500)

Frequency response		
line in		7 Hz~150 kHz, +0 dB, −3 dB
phono		20 Hz~20 kHz, RIAA±0.5 dB
mic 1, mic 2		35 Hz~30 kHz, −3 dB
Maximum output voltage		5V (20 Hz~20 kHz)
Rated total harmonic distortion		
line in		0.005% (20 Hz~20 kHz, 150 mV output)
Input sensitivity	line in, aux	150 mV
	tape	170 mV
	phono	2.5 mV
	mic 1, mic 2	1.5 mV
Rated output voltage	line out	150 mV
	rec out	150 mV
Signal to noise ratio	line in	77 dB (80 dB, IHF, A)
Maximum input voltage (T.H.D. 0.2%)		
line in		5V (1 kHz)
phono		120 mV (1 kHz)
mic 1, mic 2		70 mV (1 kHz)
Channel separation, 1 kHz		70 dB
Channel balance, 250 Hz~6300 Hz		±1.0 dB
Input impedance	line in, aux, tape	30 kilohms
	phono	47 kilohms
	mic 1, mic 2	10 kilohms
Output impedance	line out	600 ohms
	rec out	600 ohms
Dimension controller		
echo time		90 msec.
sound image localization		30 deg. (backward)
Frequency equalizer		
band level controls		+12 dB~−12 dB (5 elements continually variable per channel)
center frequency		60 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz

■ GENERAL

Power consumption	25W
Power supply	AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W×H×D)	430 × 120 × 280 mm (16-15/16" × 4-23/36" × 11-1/32")
Weight	4.8 kg (10.6 lb.)

Note: Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

TECHNISCHE DATEN Spezifikationen können infolge von verbesserungen ohne Ankündigung geändert werden.

(DIN 45 500)

Frequenzgang		
line in		7 Hz ∼ 150 kHz, +0 dB, −3 dB
phono		20 Hz ∼ 20 kHz, RIAA ± 0.5 dB
mic 1, mic 2		35 Hz ∼ 30 kHz, −3 dB
Maximate Ausgangsspannug		5V (20 Hz ∼ 20 kHz)
Nennklirrfaktor		
line in		0.005% (20 Hz ∼ 20 kHz, 150 mV ausgang)
Eingangsemphindlichkeit		
line in, aux		150 mV
tape		170 mV
phono		2.5 mV
mic 1, mic 2		1.5 mV
Nennausgangsspannung		
line out		150 mV
rec out		150 mV
Geräuschabstand	line in	77 dB (80 dB, IHF, A)
Maximale Eingangsspannung (T.H.D. 0.2%)		
line in		5V (1 kHz)
phono		120 mV (1 kHz)
mic 1, mic 2		70mV (1 kHz)
Übersprechdämpfung	1 kHz	70 dB
Kanalabweichung	250 Hz ∼ 6300 Hz	± 1.0 dB
Eingangsimpedanz	line in, aux, tape	30kΩ
	phono	47kΩ
	mic 1, mic 2	10kΩ
Ausgangsimpedanz	line out	600Ω
	rec out	600Ω
Raumklangregelung		
nachhall		90 msec.
lokalisierung		30° (rückwärts)
Frequenzgangregelung		
regelbereich		+12 dB ∼ −12 dB (in fünf voneinander unabhängigen Frequenzbereichen stufenlos einstellbar)
mittenfrequenzen		60 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz)

ALLGEMEINE DATEN

Leistungsaufnahme	25W
Netzspannung	Wechselstrom 50 Hz/60 Hz, 110V/120V/220V/240V
Abmessungen (B×H×T)	430 x 120 x 280 mm
Gewicht	4.8 kg

Bemerkung:
Der Gesamtklirrfaktor wurde mit einem digitalen Rauschspektrometer (Anlage H.P. 3045) gemessen.

DONNEES TECHNIQUES Sujet à changment sans préanis.

(DIN 45 500)

Réponse de fréquence		
line in		7 Hz~150 kHz, +0 dB, −3 dB
phono		20 Hz~20 kHz, RIAA±0,5 dB
mic 1, mic 2		35 Hz~30 kHz, −3 dB
Tension de sortie maximum		5V (20 Hz~20 kHz)
Distortion harmonique totale		
line in		0,005% (20 Hz~20 kHz, sortie 150 mV)
Sensibilité d'entrée	line in, aux	150 mV
	tape	170 mV
	phono	2,5 mV
	mic 1, mic 2	1,5 mV
Tension de sortie nominale	line out	150 mV
	rec out	150 mV
Signal/Bruit	line in	77 dB (80 dB, IHF'A)
Tension d'entrée maximum (T.H.D. 0,2%)		
line in		5V (1 kHz)
phono		120 mV (1 kHz)
mic 1, mic 2		70 mV (1 kHz)
Séparation des canaux, 1 kHz		70 dB
Equilibrage des canaux, 250 Hz~6300 Hz		±1,0 dB
Impédance d'entrée	line in, aux, tape	30kΩ
	phono	47kΩ
	mic 1, mic 2	10kΩ
Impédance de sortie	line out	600Ω
	rec out	600Ω
Compensateur ambiophonique		
délai d'echo		90 msec.
localisation de l'image sonore		30 deg (Vers l'arrière)
Egalisateur de fréquences		
curseurs linéaires		+12 dB~−12 dB (5 éléments valiables par canal)
fréquences fondamentales		60 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz

■ DIVERS

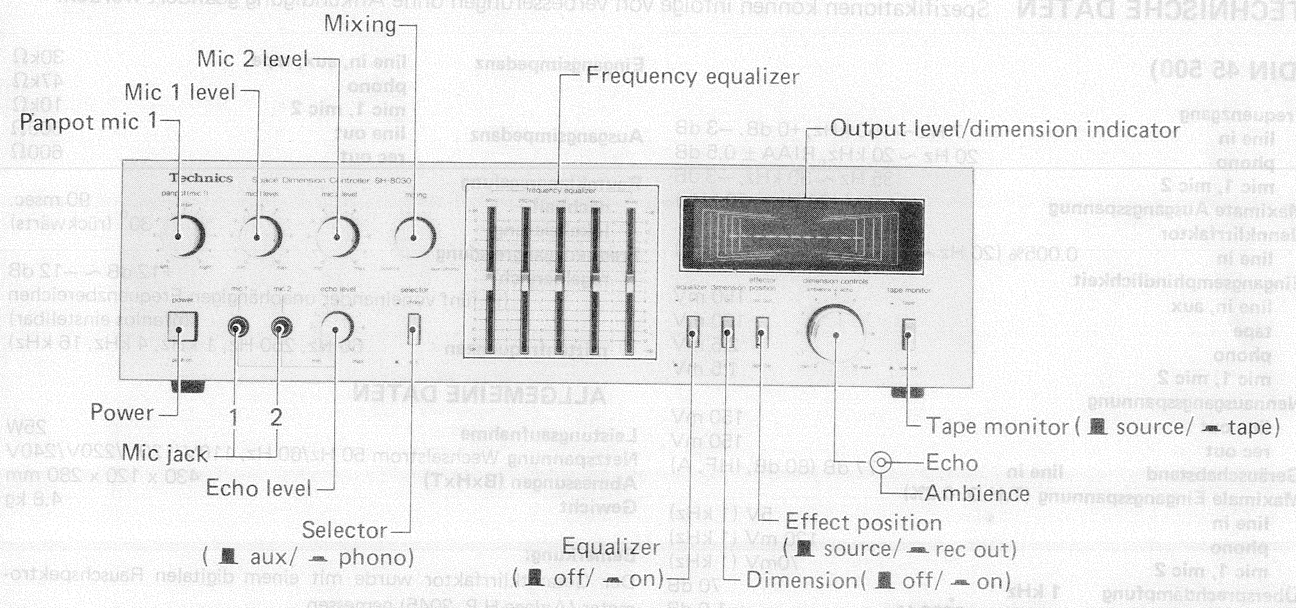
Consommation	25W
Alimentation	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (L×H×Pr)	430 × 120 × 280 mm
Poids	4,8 kg

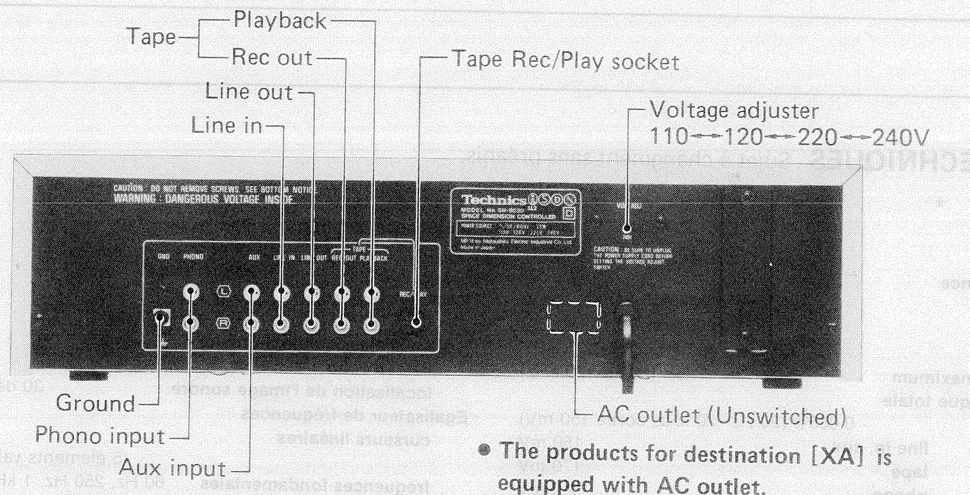
Remarque: On mesure la distorsion harmonique totale au moyen d'un analyseur de spectre digital (Système HP. 3045).

■ CONTENTS

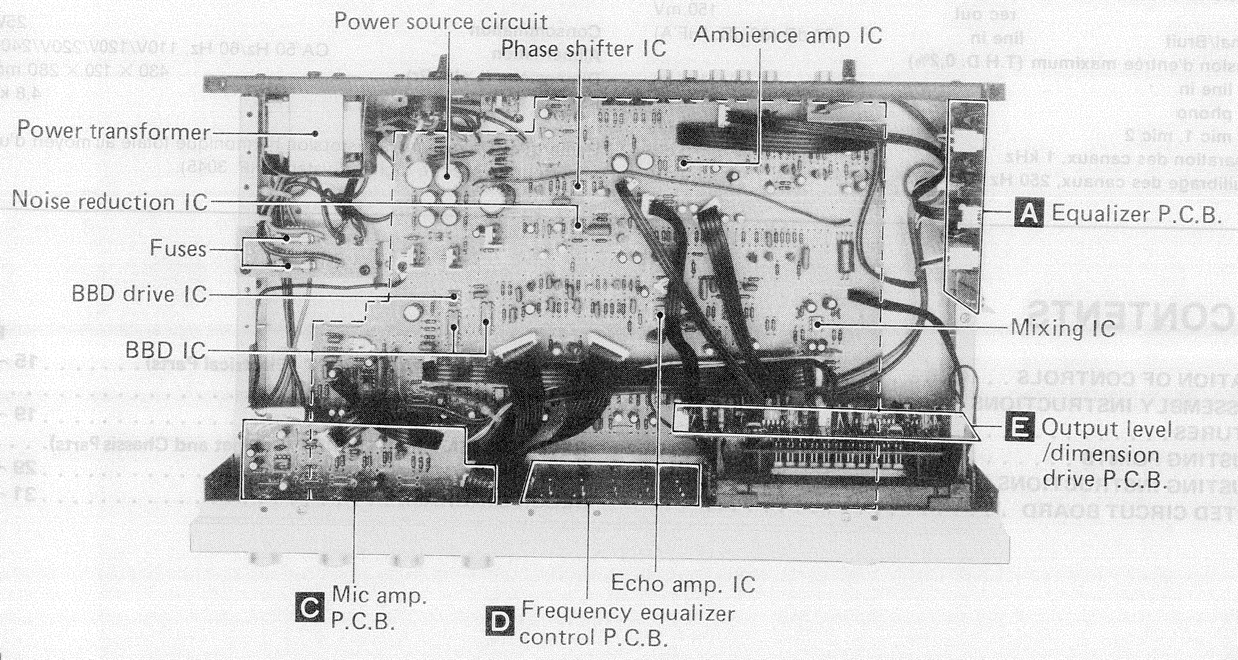
Page
LOCATION OF CONTROLS 3
DISASSEMBLY INSTRUCTIONS .... 4∼5
FEATURES .... 6∼9
ADJUSTING POINTS 9
ADJUSTING INSTRUCTIONS 10
PRINTED CIRCUIT BOARD .... 11∼14
Page
REPLACEMENT PARTS LIST (Electrical Parts) .... 15∼17
WAVEFORM 18
SCHEMATIC DIAGRAM .... 19∼27
REPLACEMENT PARTS LIST (Cabinet and Chassis Parts) 28
EXPLODED VIEW .... 29∼30
BLOCK DIAGRAM .... 31∼32

■ LOCATION OF CONTROLS


Mixing
Mic 2 level
Mic 1 level
Panpot mic 1
Frequency equalizer
Output level/dimension indicator
Technics
Power
1 2
Mic jack
Echo level
Selector
(■ aux/ ▬ phono)
Equalizer
(■ off/ ▬ on)
Dimension(■ off/ ▬ on)
Effect position
(■ source/ ▬ rec out)
Ambience
Echo
Tape monitor (■ source/ ▬ tape)


Tape
Playback
Rec out
Line out
Line in
Tape Rec/Play socket
Voltage adjuster
110↔120↔220↔240V
CAUTION : DO NOT REMOVE SCREWS. SEE BOTTOM NOTICE
WARNING : DANGEROUS VOLTAGE INSIDE
Technics
Ground
Phono input
Aux input
AC outlet (Unswitched)

- **The products for destination [XA] is equipped with AC outlet.**


Power source circuit
Phase shifter IC
Ambience amp IC
Power transformer
Noise reduction IC
Fuses
BBD drive IC
BBD IC
A Equalizer P.C.B.
Mixing IC
E Output level /dimension drive P.C.B.
C Mic amp. P.C.B.
D Frequency equalizer control P.C.B.
Echo amp. IC

■ DISASSEMBLY INSTRUCTIONS

• How to remove the front panel and bottom board

1. Remove the 4 setscrews (Fig. 1 : ❶ ~ ❹) on the side of the cabinet.
   Slightly push the cabinet and then lift it to remove.
2. Remove the 6 (Fig. 2 : ❺ ~ ❿) setscrews of the bottom board.
   Slightly push the bottom board in the direction of the arrow and then lift it to remove.

• How to remove the front panel

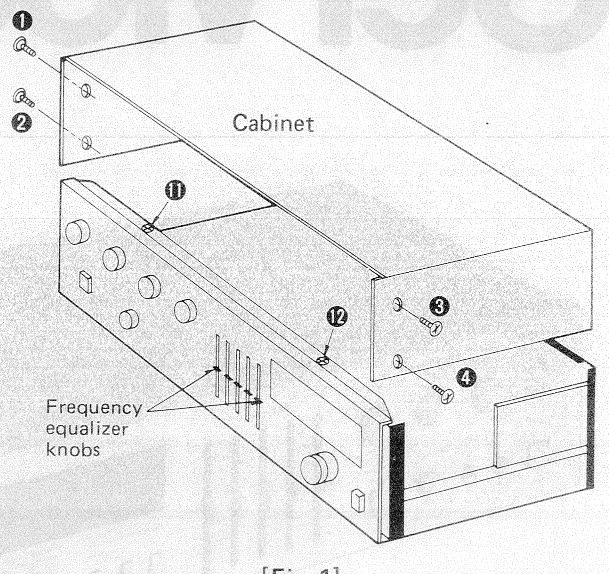
1. Remove the cabinet.
2. Remove the 5 frequency equalizer knobs (Fig. 1).
3. Remove the 4 setscrews (Fig. 1 : ⓫ ~ ⓬, Fig. 2 : ⓭ ~ ⓮) of the front panel.
4. Remove the fixing lug for the frequency equalizer and dimension indicator printed circuit board (Fig. 3 : ⓯).

• How to remove the output level/dimension indicator printed circuit board

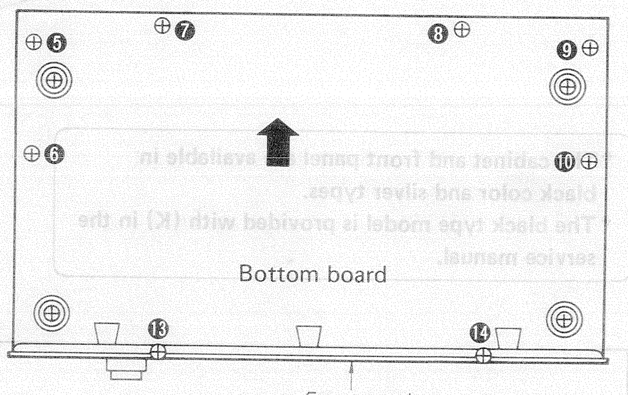
1. Remove the cabinet.
2. Remove the front panel.
3. Press the output level/dimension indicator printed circuit board fixing lugs (Photo 1 : ⓰ ~ ⓱) in the direction of the arrows Ⓐ and Ⓑ.
   Then remove the printed circuit board in the direction of the arrow Ⓒ.
4. Press the output level indicator printed circuit board fixing claws (Photo 2 : ⓲ ~ ⓳) in the direction of the arrows Ⓓ and Ⓔ.
   Then remove the printed circuit board in the direction of the arrow Ⓕ.
5. Detach the setscrew (Photo 3 : ⓴) and remove the output level/dimension indicator toward you.
6. Remove the right or left lamp printed circuit board fixing lugs (Photo 4 : ㉑ ~ ㉓) of the output level/dimension indicator in the direction of the arrows Ⓗ, Ⓙ and Ⓚ respecitively.
7. When replacing the scale, disengage the reflection plate lugs (Photo 5 : ㉔ ~ ㉕) in the direction of the arrow and remove the reflection plate.
   Then the scale can be replaced.

NOTE:

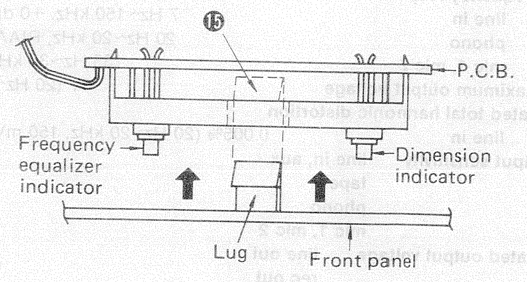
1. When inserting the scale into the case, make sure that the scale is clean.
2. For the position of each scale, refer to Fig. 4.


❶
❷
Cabinet
⓫
⓬
❸
❹
Frequency equalizer knobs

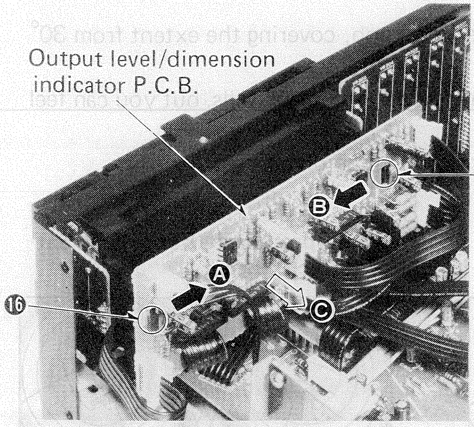
[Fig. 1]


❺
❼
❽
❾
❻
❿
Bottom board
⓭
⓮
Front panel

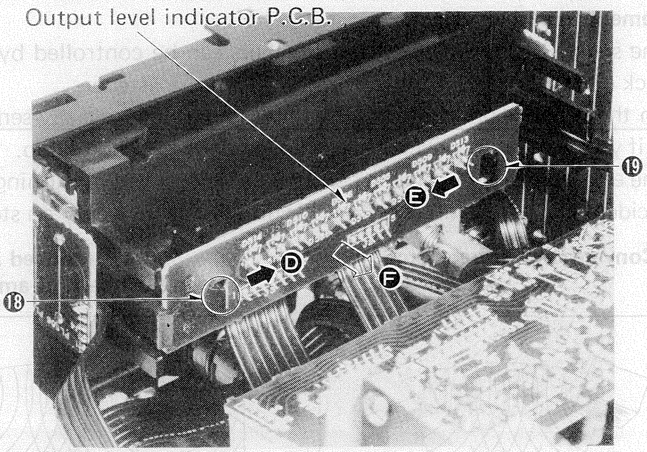
[Fig. 2]


⓯
P.C.B.
Frequency equalizer indicator
Dimension indicator
Lug
Front panel

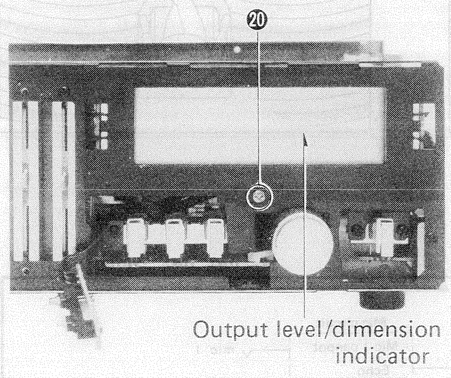
[Fig. 3]


Output level/dimension indicator P.C.B.
⑰
B
A
C
⑯

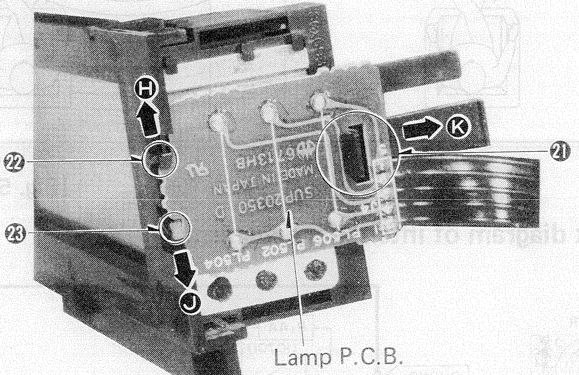
[Photo 1]


Output level indicator P.C.B.
⑲
E
D
F
⑱

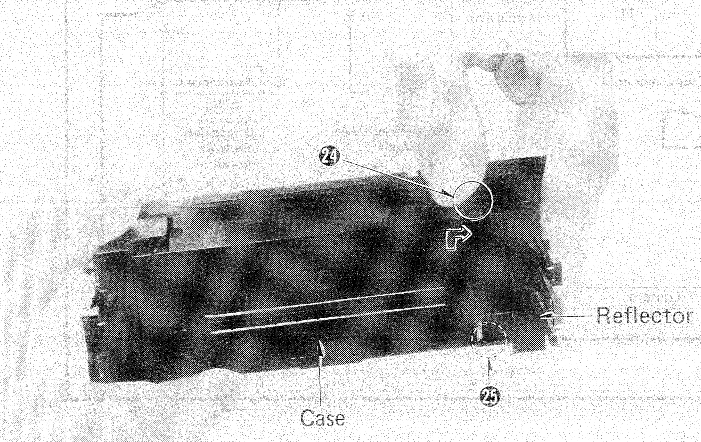
[Photo 2]


⑳
Output level/dimension indicator

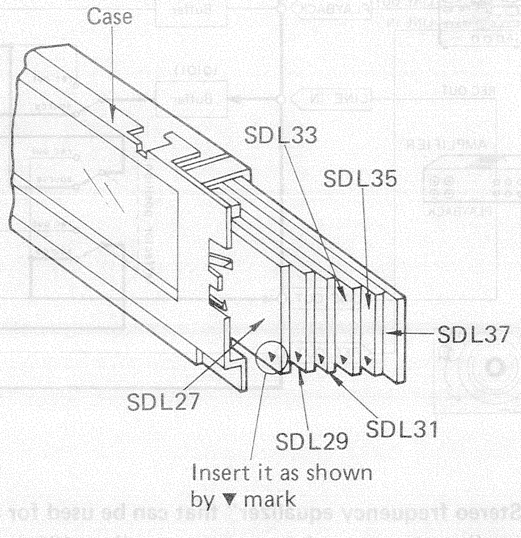
[Photo 3]


H
K
㉑
㉒
㉓
J
Lamp P.C.B.

[Photo 4]


㉔
Reflector
Case
㉕

[Photo 5]


Case
SDL33
SDL35
SDL37
SDL27
SDL29
SDL31
Insert it as shown by ▼ mark

[Fig. 4]

■ FEATURES

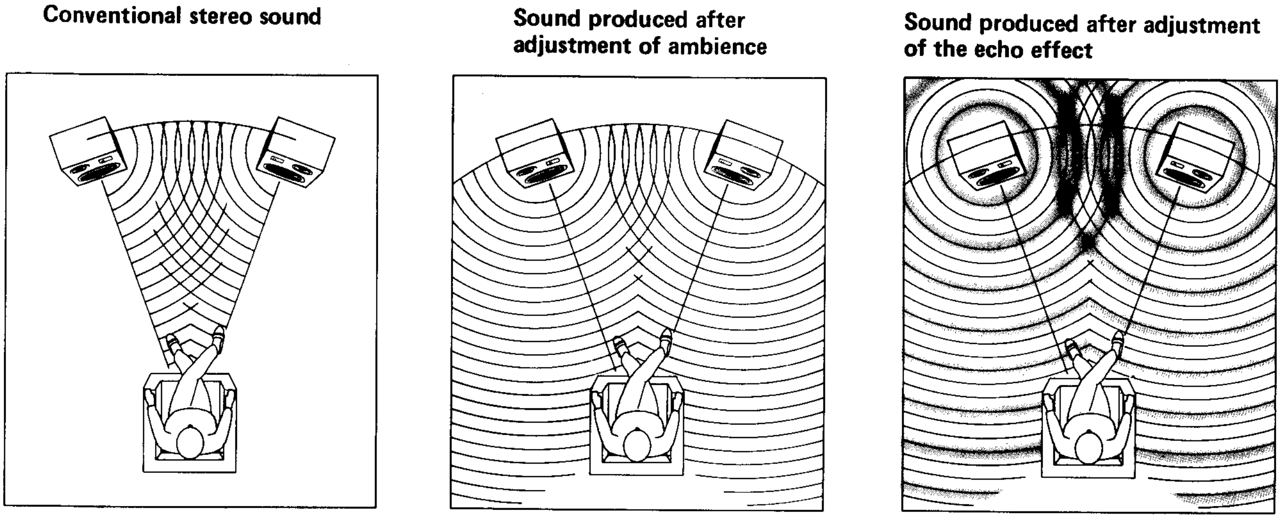
1. **The dimension control consists of "ambience" to control the sound extension and "echo" that uses BBD delay element to add an effect.**

The sounds from the two front speakers can be controlled by the "ambience" knob, covering the extent from 30° back on the right to 30° back on the left of the listener.

On the other hand, the size of the listening room is usually sensed through the echo from the walls, but you can feel as if you were in a concert hall by adjusting the "echo" knob.

The effects of the dimension control can be checked by turning the "dimension" switch on and off.

Incidentally, the "ambience" of this unit is effective only on stereo signal.

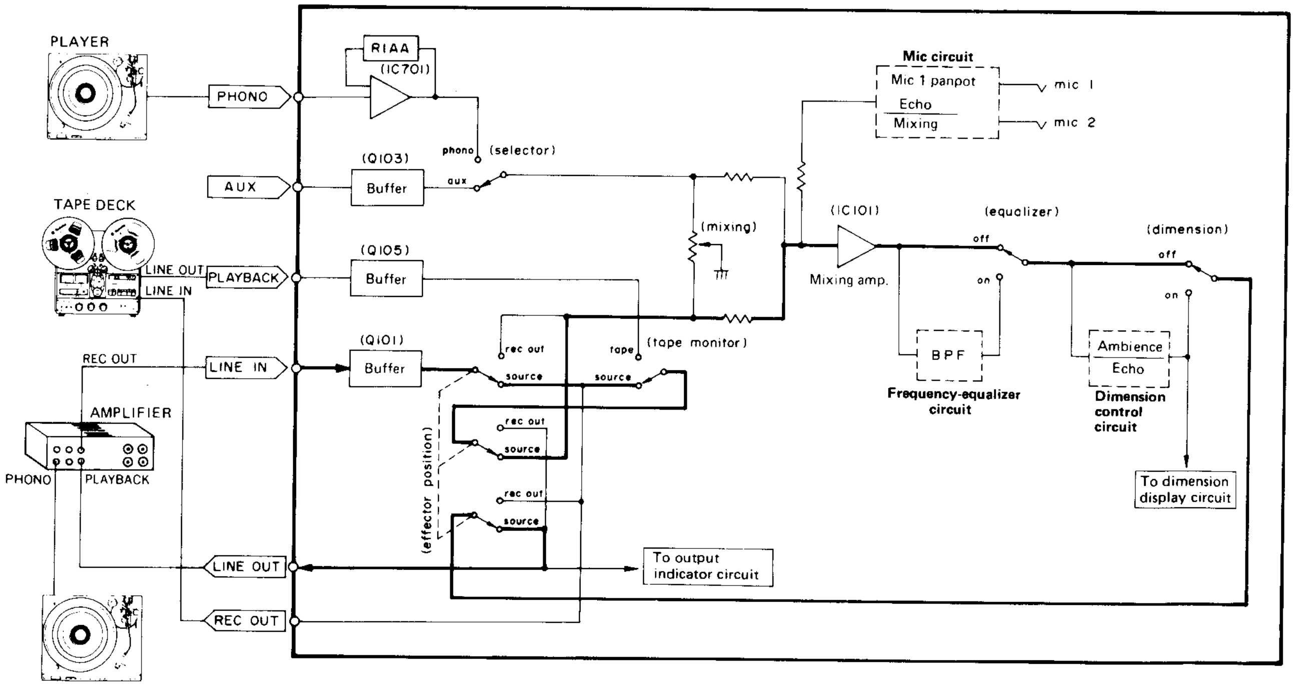

Conventional stereo sound

Sound produced after adjustment of ambience

Sound produced after adjustment of the echo effect

[Fig. 5]

• Block diagram of internal mechanism


PLAYER
PHONO
RIAA
(IC701)
phono
(selector)
(Q103)
Buffer
aux
AUX
TAPE DECK
LINE OUT
LINE IN
PLAYBACK
(Q105)
Buffer
(mixing)
(Q101)
Buffer
rec out
source
tape
(tape monitor)
source
REC OUT
LINE IN
AMPLIFIER
PHONO
PLAYBACK
rec out
source
rec out
source
(effector position)
LINE OUT
To output indicator circuit
REC OUT
Mic circuit
Mic 1 panpot
Echo
Mixing
mic 1
mic 2
(IC101)
Mixing amp.
(equalizer)
off
on
BPF
Frequency-equalizer circuit
(dimension)
off
on
Ambience
Echo
Dimension control circuit
To dimension display circuit

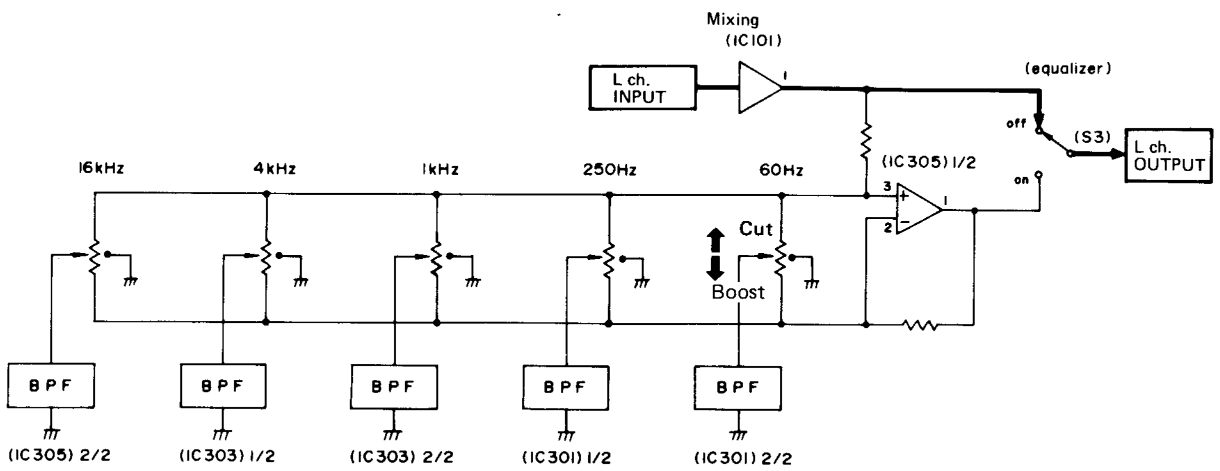
[Fig. 6]

2. **"Stereo frequency equalizer" that can be used for correcting tone quality and for creating desired tones.**

The five elements of frequency equalizer (60Hz, 250Hz, 1kHz, 4kHz, 16kHz) arranged at 2 octave intervals are capable of ±12dB level control of sound of each band. This mechanism can be widely used for prevention of howling during use of microphone, for vocal emphasis and for correction of listening room characteristics.

Also, the effects of the stereo frequency equalizer can be checked by turning the "equalizer" switch on and off.

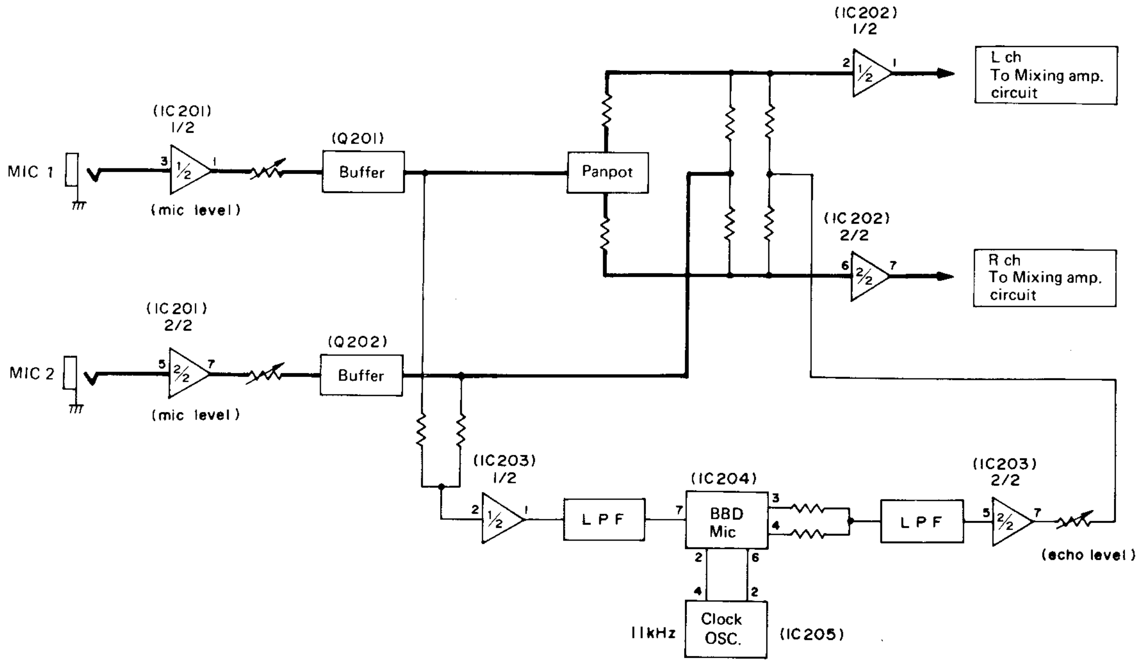
- **Block diagram of frequency equalizer circuit**


Mixing
(IC101)
L ch.
INPUT
(equalizer)
off
(S3)
L ch.
OUTPUT
on
(IC305) 1/2
16kHz
4kHz
1kHz
250Hz
60Hz
Cut
Boost
BPF
BPF
BPF
BPF
BPF
(IC305) 2/2
(IC303) 1/2
(IC303) 2/2
(IC301) 1/2
(IC301) 2/2

[Fig. 7]

3. **Two microphones, provided with BBD electronic echo, can be used.**
   Both mic 1 and 2 are provided with independent level control so that you can enjoy mixing of tape and record. The echo circuit is of electronic system using BBD delay elements, and the echo level can be freely controlled. The mic 2 is fixed at the center, while the mic 1 can be shifted to the right or left by the "panpot" knob.

- **Block diagram of mic circuit**

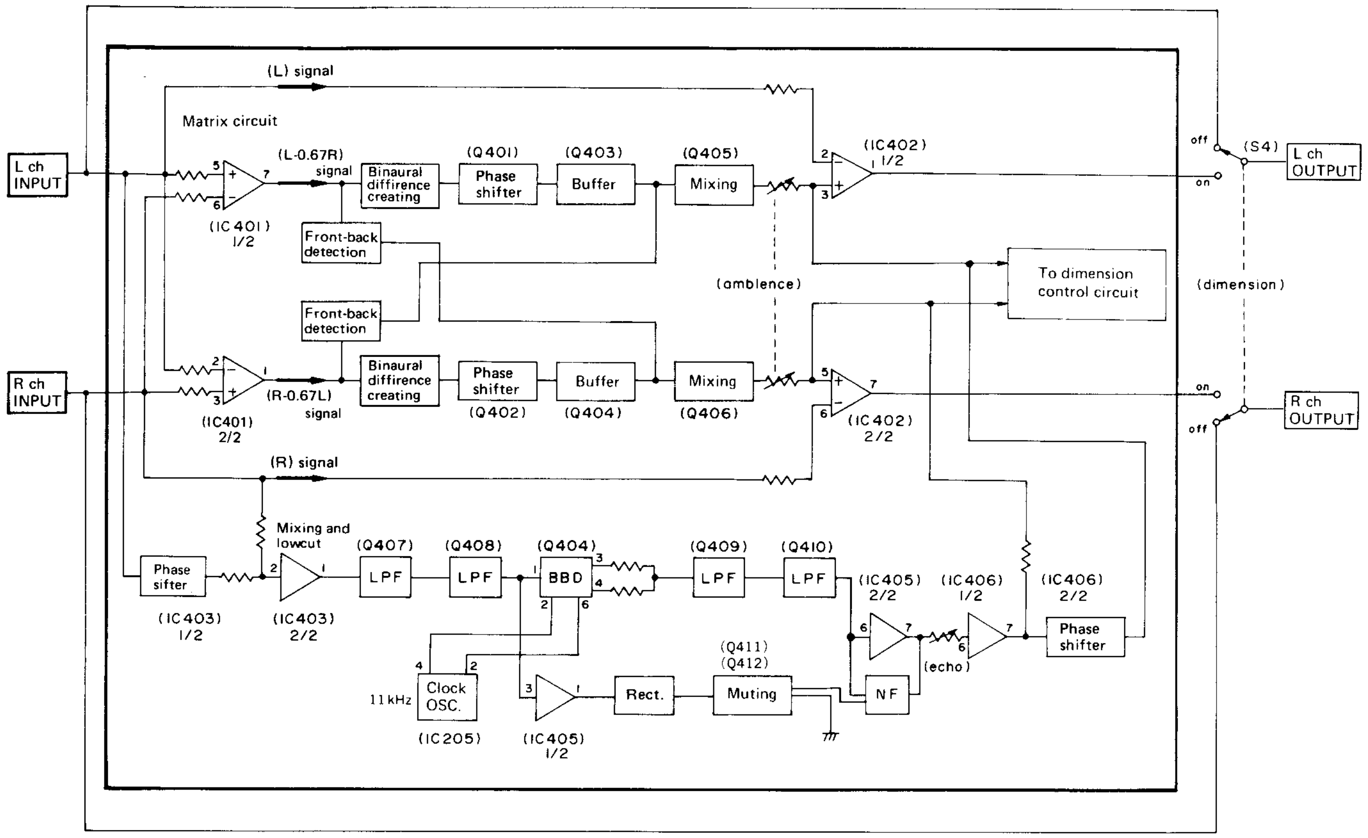

(IC202)
1/2
L ch
To Mixing amp.
circuit
(IC201)
1/2
(Q201)
MIC 1
Buffer
Panpot
(mic level)
(IC202)
2/2
R ch
To Mixing amp.
circuit
(IC201)
2/2
(Q202)
MIC 2
Buffer
(mic level)
(IC203)
1/2
(IC204)
(IC203)
2/2
LPF
BBD
Mic
LPF
(echo level)
11kHz
Clock
OSC.
(IC205)

[Fig. 8]

4. **Phase-in and phase-out can be obtained by use of two players.**
   Connect another player to the "PHONO" terminal on the rear, set the "selector" switch on the front to "phono" and turn the "mixing" knob, thus mixing with the player connected to the amplifier can be achieved. This function can be used for non-stop performance.
   A similar performance can be obtained by connecting a tape deck or tuner to the "AUX" terminal on the rear. In this case, set the "selector" switch to "aux".
5. **You can record the effects of this unit into the tape deck to enjoy the sound through car stereo.**
   This unit is connected to the tape deck terminal of the amplifier, and the tape deck must be connected to this unit. Therefore, the tape monitor is switched by the "tape monitor" switch of this unit. Recording into the tape deck can be performed with the "tape monitor" switch set to the "source" position. When the "effector position" switch is at "source", the signal from the amplifier is recorded without passing through the circuit of this unit, and with the switch set to "rec out", the effects of this unit are recorded into the deck.

6. **Sound extension and output signal level are displayed.**
   The extension of sound and the output signal level are displayed in combination of LED and lamp.
   This function gives the listener a visual enjoyment. When the "dimension" switch is set to "off", the peak level indicator of LED displays the output signal level of this unit by 5dB step.

- **Block diagram of dimension control circuit**


(L) signal
Matrix circuit
L ch
INPUT
(L-0.67R)
signal
Binaural
diffirence
creating
(Q401)
Phase
shifter
(Q403)
Buffer
(Q405)
Mixing
(IC402)
1/2
off
(S4)
L ch
OUTPUT
on
(IC401)
1/2
Front-back
detection
To dimension
control circuit
(amblence)
(dimension)
Front-back
detection
R ch
INPUT
Binaural
diffirence
creating
(R-0.67L)
signal
Phase
shifter
Buffer
Mixing
(IC401)
2/2
(Q402)
(Q404)
(Q406)
(IC402)
2/2
on
off
R ch
OUTPUT
(R) signal
Mixing and
lowcut
Phase
sifter
(Q407)
LPF
(Q408)
LPF
(Q404)
BBD
(Q409)
LPF
(Q410)
LPF
(IC405)
2/2
(IC406)
1/2
(IC406)
2/2
Phase
shifter
(IC403)
1/2
(IC403)
2/2
(echo)
11kHz
Clock
OSC.
Rect.
(Q411)
(Q412)
Muting
NF
(IC205)
(IC405)
1/2

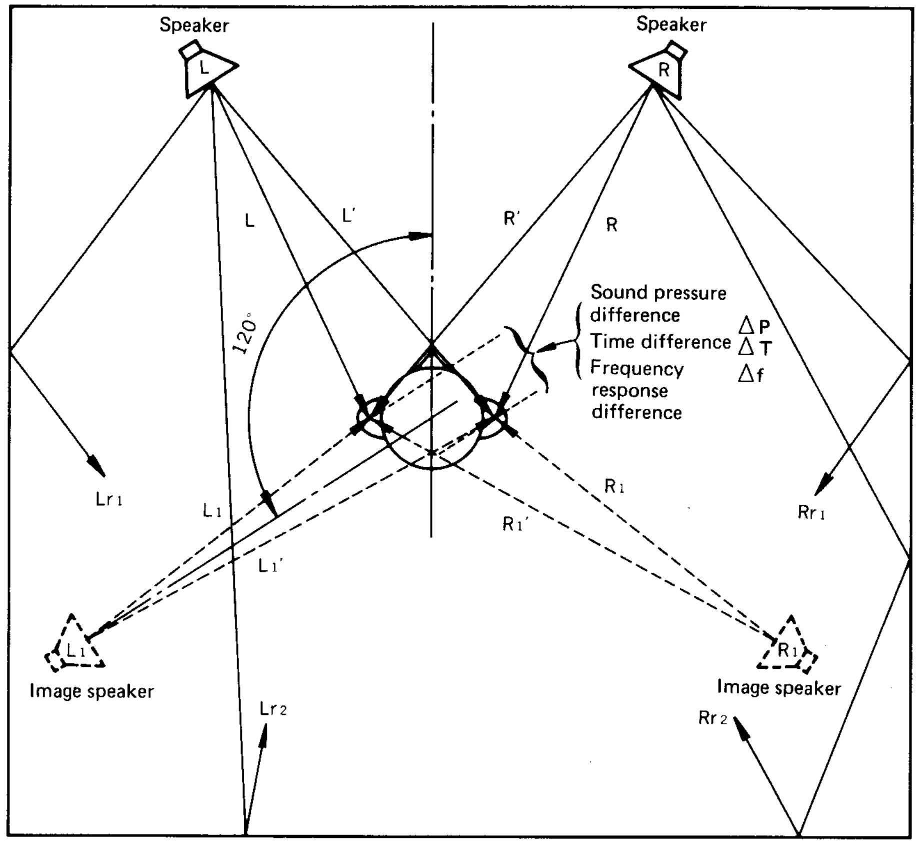
[Fig. 9]

- **Principle of dimension control**

The sound image expansion technology based on ambience is that the direction of sound image can be controlled irrespective of speaker positions while using two speakers located ahead on the right and left.
When a man listens to the sound from the speakers as in Fig. 10, the direct sounds **L** and **R′** enter the left ear, while **R** and **L′** go into the right ear.
The man senses the position of speaker (position of sound image) through the frequency characteristic of **L** and **R**, time different ΔT between **L** and **L′**, **R** and **R′** to reach the ears, and sound pressure difference ΔP.
The relations can be represented as follows:

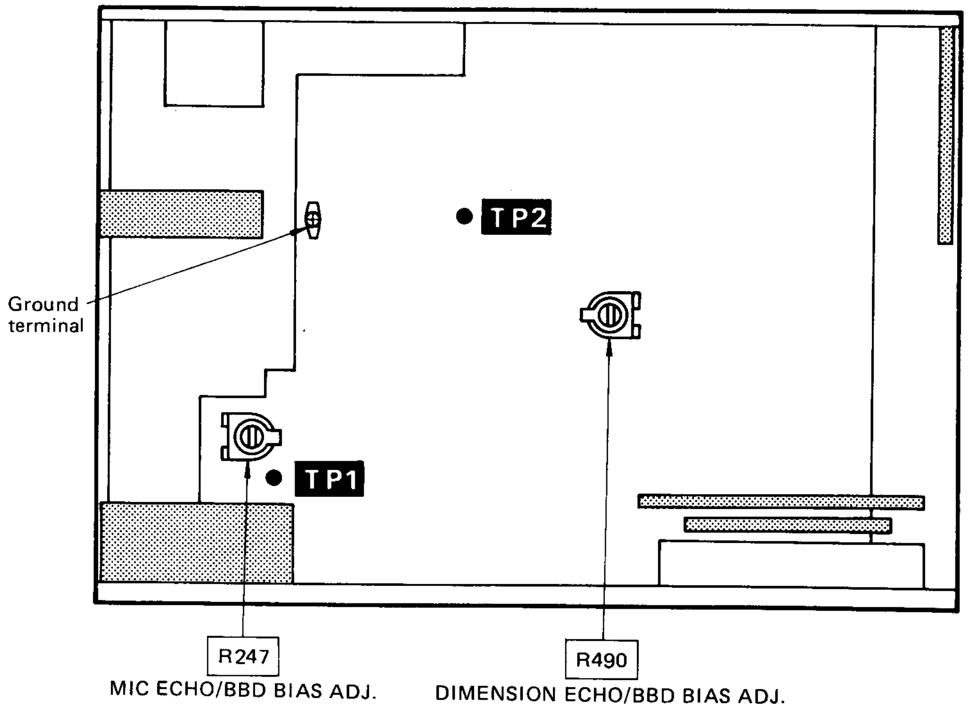
$$\mathbf{L' = L + (\Delta T, \Delta P) \quad R' = R + (\Delta T, \Delta P)}$$

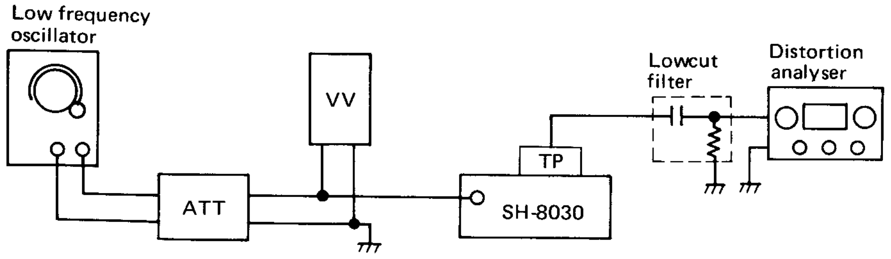
Accordingly, it is possible to set the sound image at a desired position by controlling the frequency response difference Δf, time difference ΔT and sound pressure difference ΔP.
In this unit, indirect sound component is created by signal of **L** and **R**, to which Δf_1, ΔT_1 and ΔP_1 equivalent to the image speaker located at 30° back are added, then the signal is applied to the front speaker, thus the listener is given a feeling of sound extension up to 240°.
Incidentally, only direct sounds are taken into consideration in the above explanation. Actually, however, echo from the walls such as $\mathbf{Rr_1}$, $\mathbf{Rr_2}$ ..... $\mathbf{Lr_1}$, $\mathbf{Lr_2}$ ..... will enter the ears. Since the man senses the size of the room through the level of such echo and its timing, it is possible to control the size of the room, that is, the hall effect, by controlling the echo level.


Speaker
L
Speaker
R
L
L'
R'
R
120°
Sound pressure difference ΔP
Time difference ΔT
Frequency response difference Δf
Lr1
L1
L1'
R1
R1'
Rr1
L1
Image speaker
R1
Image speaker
Lr2
Rr2

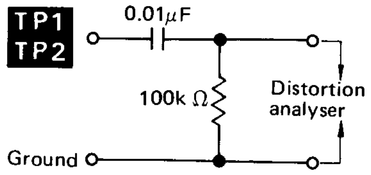
[Fig. 10]

■ ADJUSTING POINTS


TP2
Ground terminal
TP1
R247
MIC ECHO/BBD BIAS ADJ.
R490
DIMENSION ECHO/BBD BIAS ADJ.


Low frequency oscillator
VV
ATT
TP
SH-8030
Lowcut filter
Distortion analyser

[Fig. 11]
[Abb. 11]


TP1
TP2
0.01μF
100k Ω
Distortion analyser
Ground

Lowcut filter
[Fig. 12]
[Abb. 12]

■ ADJUSTING INSTRUCTIONS ENGLISH

- **Setting of controls and instruments to be used**

1. Distortion analyser
2. Low frequency oscillator
   (Distortion factor 0.01% or less)
3. AC electronic voltmeter
4. Attenuater
5. Low cut filter (Fig. 12)
6. Mic 1 volume . . . . Maximum
7. Echo (Mic) volume. . . . . . . Minimum

- **BBD bias (mic echo) adjustment**

1. Connect the distortion analyser between **TP1** and ground through lowcut filter.
2. Apply 1 kHz, 10 mV signal to microphone jack. (mic 1)
3. Adjust R247 so that the distortion minimum. (0.7% or less)

- **BBD bias (dimension echo) adjustment**

1. Connect the distortion analyser between **TP2** and ground through lowcut filter.
2. Apply 1 kHz, 0.5V signal to LINE IN terminal.
3. Adjust R490 so that the distortion minimum. (0.7% or less)

■ EINSTELLUNGSANWEISUNGEN DEUTSCH

- **Einstellung der verwendeten Regler und Instrumente**

1. Verzerrungsmesser.
2. Unterbandoszillator (Klirrfaktor 0.01% oder weniger).
3. Elektronisches Wechselstrom-Voltmeter.
4. Dämpfungsglied.
5. Niederfrequenzfilter (Abb. 12).
6. Lautstärke Mikrofon 1 . . . . Maximum
7. Lautstärke Echo (Mikrofon). . . . . . . Minimum

- **BBD-Vormagnetisierungs-Abgleichung (Mikrofon-Echo)**

1. Den Verzerrungsmesser zwischen **TP1** und Masse durch das Niederfrequenzfilter anschließen.
2. Signal von 1kHz, 10mV an die Midrofon-Anschlußbuches (mic 1) geben.
3. R247 auf kleinstmögliche Verzerrung abgleichen (0.7% oder weniger).

- **BBD-Vormagnetisierungs-Abgleichung (Dimention-Echo)**

1. Den Verzerrungsmesser zwischen **TP2** und Masse durch das Niederfrequenzfilter anschlißen.
2. Signal von 1kHz, 0.5V an die LINE IN schließen geben.
3. R490 auf kleinstmögliche Verzerrung abgleichen (0.7% oder weniger).

■ INSTRUCTIONS DE REGLAGE FRANÇAIS

- **Réglage des commandes et des instruments à utiliser**

1. Analyseur de distorsion.
2. Oscillateur à bases fréquences.
   (Facteur de distorsion de 0.01% ou moins.)
3. Voltmètre électronique C.A.
4. Atténuateur.
5. Filtre de coupure de gammes basses (Fig. 12.)
6. Volume du micro 1. . . . . Maximum
7. Volume (micro) d'écho. . . . . Minimum

- **Mise au point de la polarisation (écho du mocro) BBD**

1. Brancher l'analyseur de distorsion entre **TP1** et la masse par l'intermédiaire du filtre de coupure de gammes basses.
2. Appliquer un signal de 1kHz, 10mV au jack du microphone (micro 1).
3. Régler R247 de façon à ce que la distorsion soit minimale (0.7% ou moins).

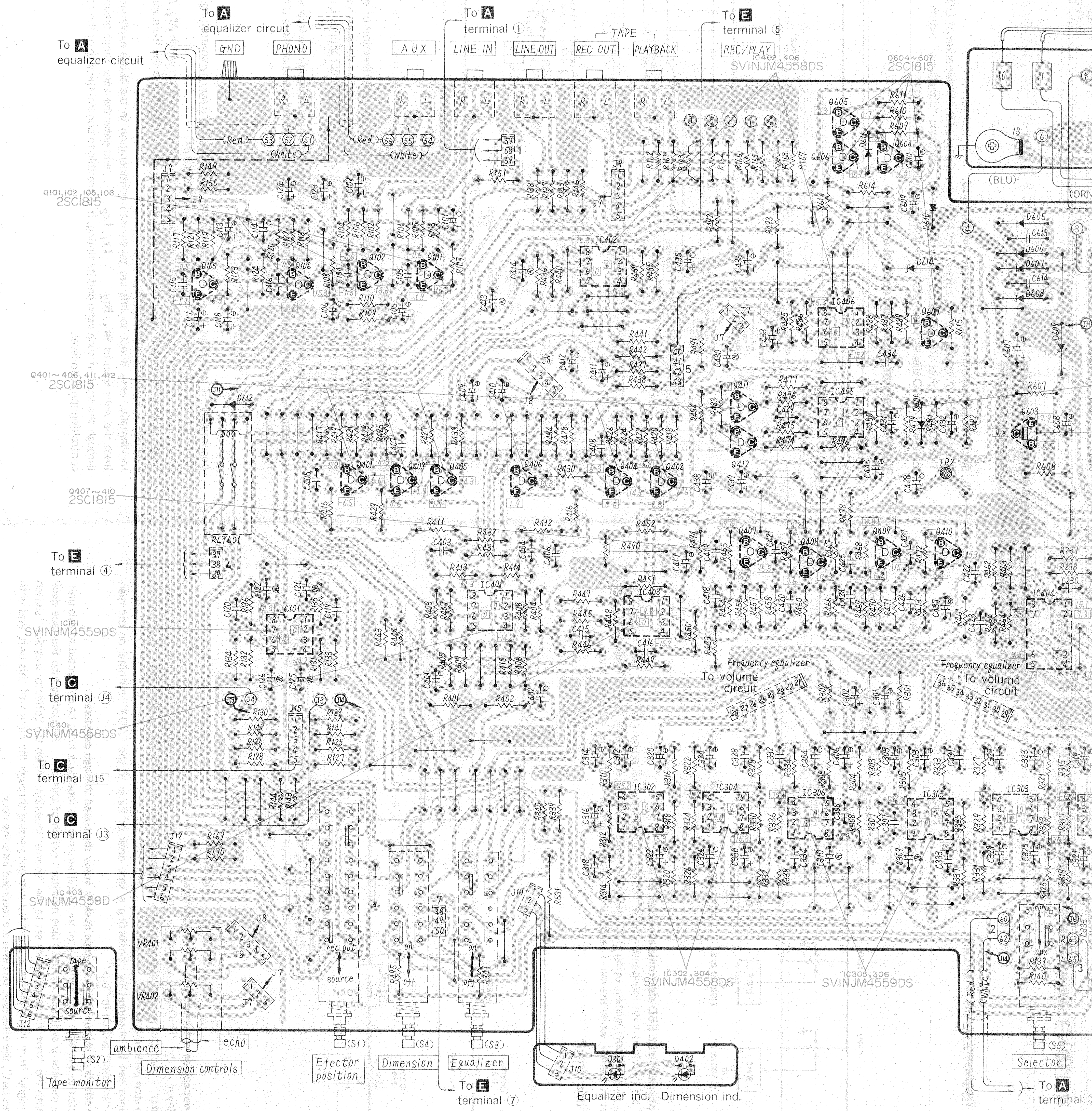
- **Mise au point de la polarisation (écho du dimension) BBD**

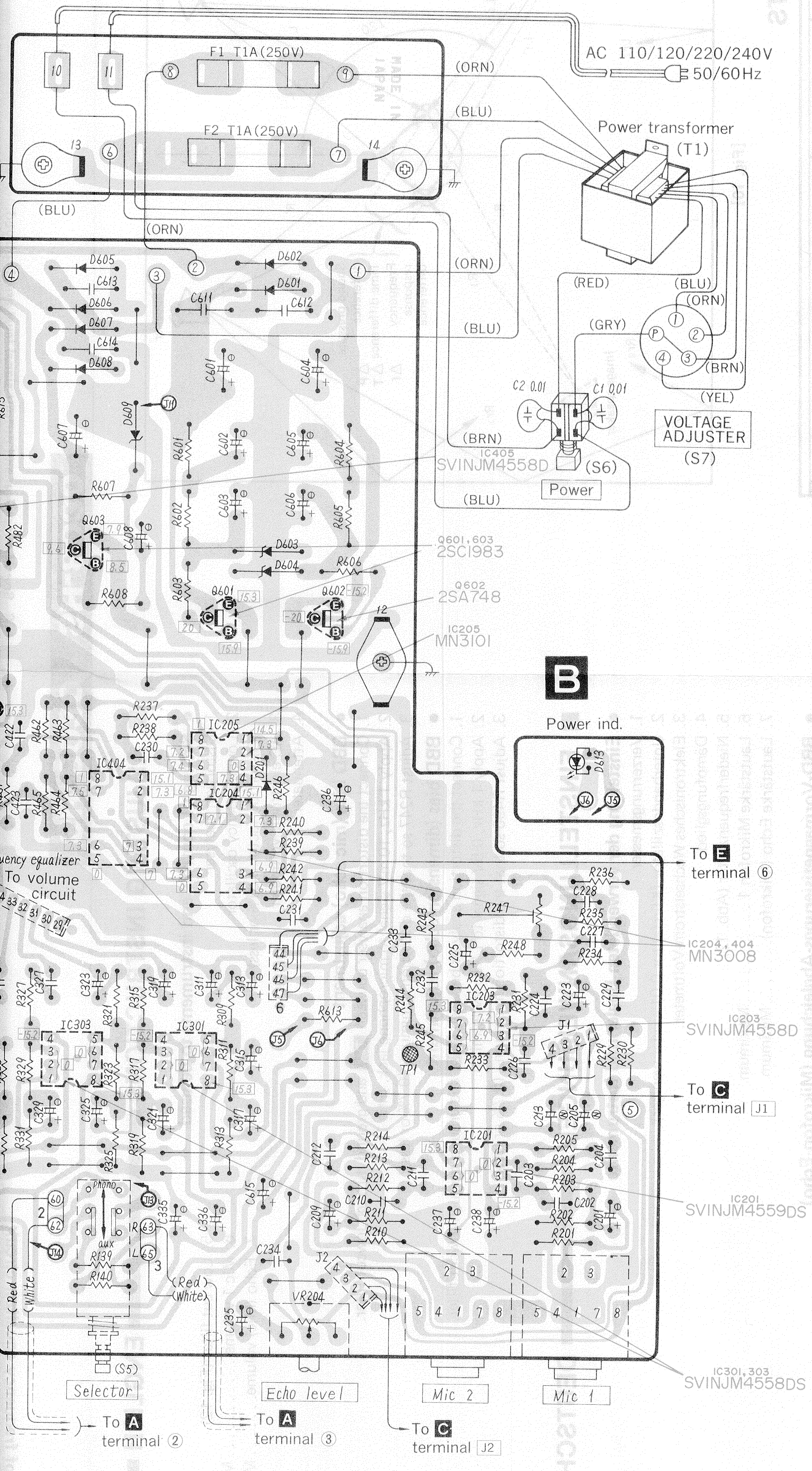
1. Brancher l'analyseur de distorsion entre **TP2** et la masse par l'intermédiaire du filtre de coupure de gammes basses.
2. Appliquer un signal de 1kHz, 0.5V au LINE IN.
3. Régler R490 de façon à ce que la distorsion soit minimale (0.7% ou moins).

■ PRINTED CIRCUIT BOARDS

▨ Ground (Earth) Lines

B Mic amp./frequency equalizer/BBD/dimension control/power source P.C.B.


To A equalizer circuit
To A equalizer circuit
GND
PHONO
AUX
To A terminal ①
LINE IN
LINE OUT
TAPE
REC OUT
PLAYBACK
To E terminal ⑤
REC/PLAY
IC402, 406 SVINJM4558DS
Q604~607 2SC1815
Q101, 102, 105, 106 2SC1815
Q401~406, 411, 412 2SC1815
Q407~410 2SC1815
To E terminal ④
IC101 SVINJM4559DS
To C terminal J4
IC401 SVINJM4558DS
To C terminal J15
To C terminal J3
IC403 SVINJM4558D
RLY601
Frequency equalizer
To volume circuit
Frequency equalizer
To volume circuit
IC302, 304 SVINJM4558DS
IC305, 306 SVINJM4559DS
tape
source
(S2)
Tape monitor
ambience
echo
Dimension controls
rec out
source
(S1)
Ejector position
on
off
(S4)
Dimension
on
off
(S3)
Equalizer
To E terminal ⑦
D301
D402
Equalizer ind.
Dimension ind.
Phono
aux
(S5)
Selector
To A terminal
(BLU)
(ORN
(Red)
(White)
TP2

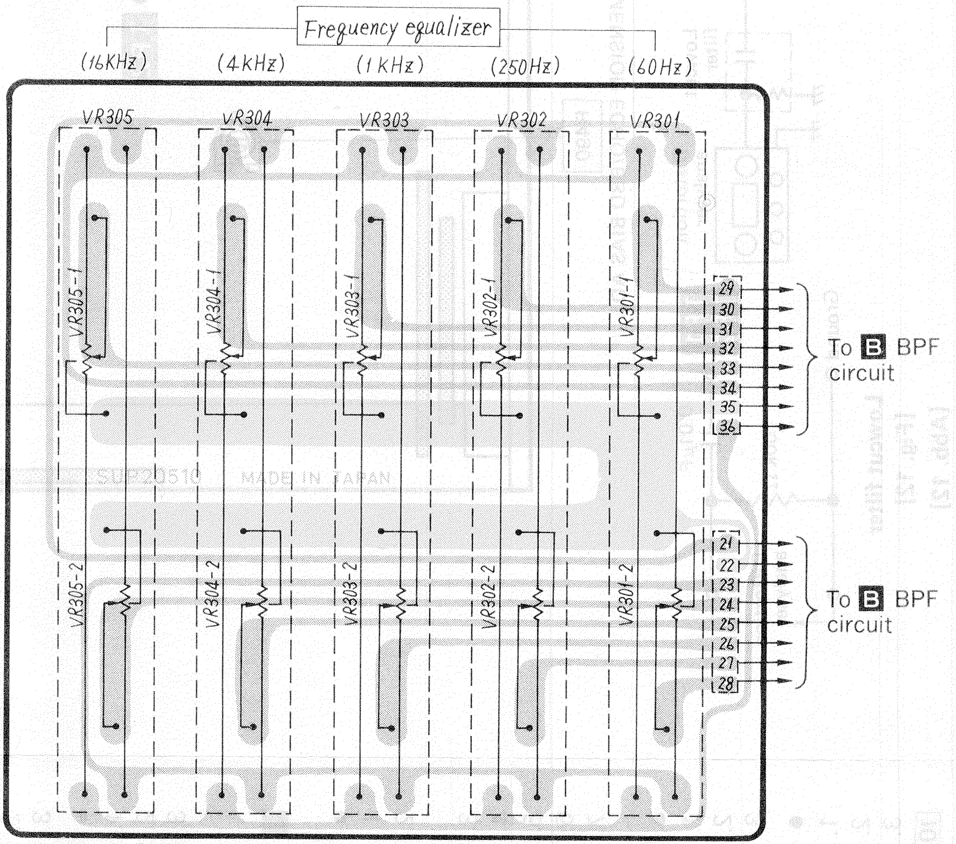

AC 110/120/220/240V
50/60Hz
F1 T1A(250V)
F2 T1A(250V)
(ORN)
(BLU)
(RED)
(GRY)
(BRN)
(YEL)
Power transformer (T1)
C2 0.01
C1 0.01
VOLTAGE ADJUSTER (S7)
Power (S6)
IC405 SVINJM4558D
Q601,603 2SC1983
Q602 2SA748
IC205 MN3101
Frequency equalizer
To volume circuit
To E terminal ⑥
IC204,404 MN3008
IC203 SVINJM4558D
To C terminal J1
IC201 SVINJM4559DS
IC301,303 SVINJM4558DS
Selector (S5)
Echo level
Mic 2
Mic 1
To A terminal ②
To A terminal ③
To C terminal J2

B

Power ind.

D613
J6
J5

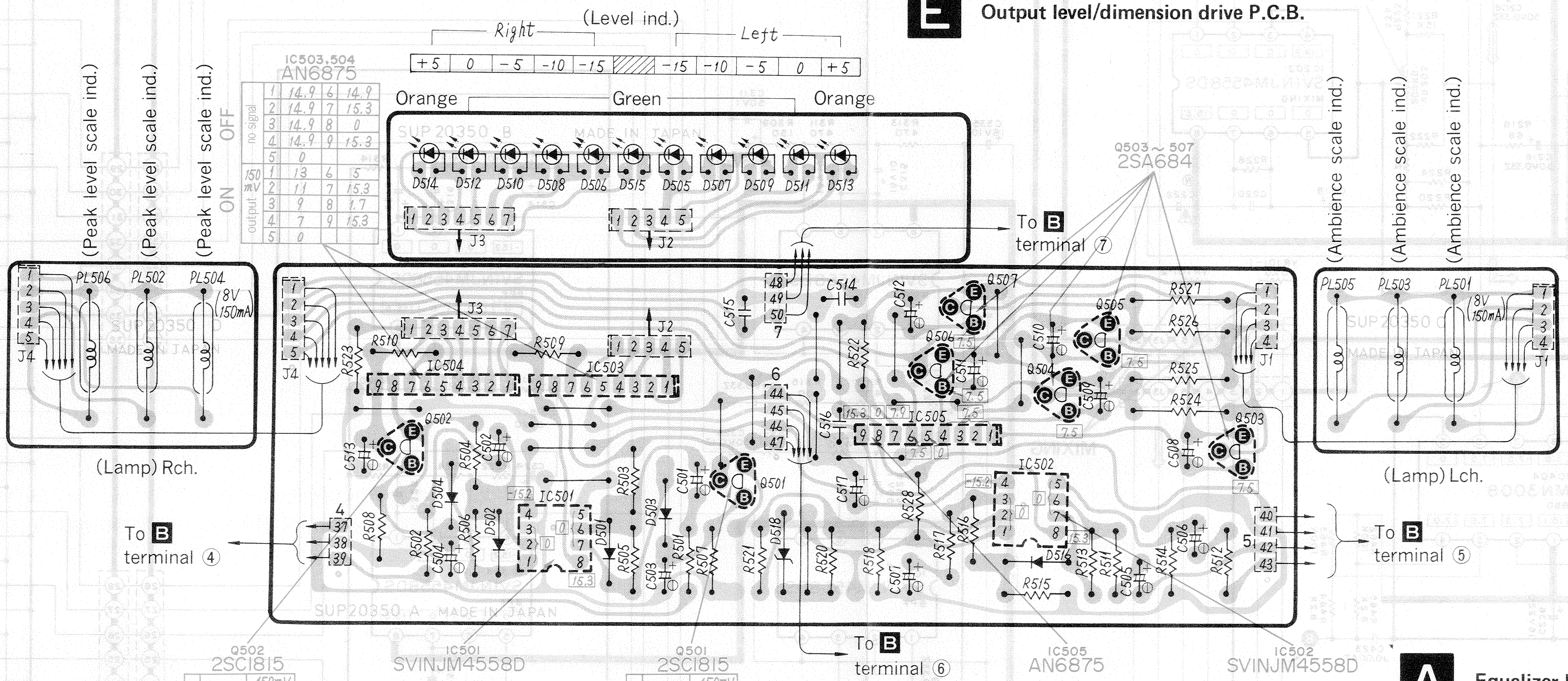
D Frequency equalizer control P.C.B.


Frequency equalizer
(16KHz)
(4kHz)
(1kHz)
(250Hz)
(60Hz)
VR305
VR304
VR303
VR302
VR301
VR305-1
VR304-1
VR303-1
VR302-1
VR301-1
VR305-2
VR304-2
VR303-2
VR302-2
VR301-2
To B BPF circuit
To B BPF circuit
SUP20510
MADE IN JAPAN

■ PRINTED CIRCUIT BOARDS

▨ Ground (Earth) lines

E Output level/dimension drive P.C.B.


(Level ind.)
Right
Left
+5 | 0 | -5 | -10 | -15 | ▨ | -15 | -10 | -5 | 0 | +5
Orange
Green
Orange
SUP20350 B MADE IN JAPAN
D514 D512 D510 D508 D506 D515 D505 D507 D509 D511 D513
J3
J2
(Peak level scale ind.)
(Peak level scale ind.)
(Peak level scale ind.)
PL506 PL502 PL504 (8V 150mA)
J4
(Lamp) Rch.
To B terminal ⑦
Q503～507 2SA684
(Ambience scale ind.)
(Ambience scale ind.)
(Ambience scale ind.)
PL505 PL503 PL501 (8V 150mA)
J1
(Lamp) Lch.
IC504
IC503
IC505
IC501
IC502
Q501 Q502 Q503 Q504 Q505 Q506 Q507
To B terminal ④
To B terminal ⑤
To B terminal ⑥
SUP20350 A MADE IN JAPAN
IC505 AN6875
IC502 SVINJM4558D
IC501 SVINJM4558D

IC503,504 AN6875

OFF no signal	1	14.9	6	14.9
	2	14.9	7	15.3
	3	14.9	8	0
	4	14.9	9	15.3
	5	0		
ON 150mV output	1	13	6	5
	2	11	7	15.3
	3	9	8	1.7
	4	7	9	15.3
	5	0		

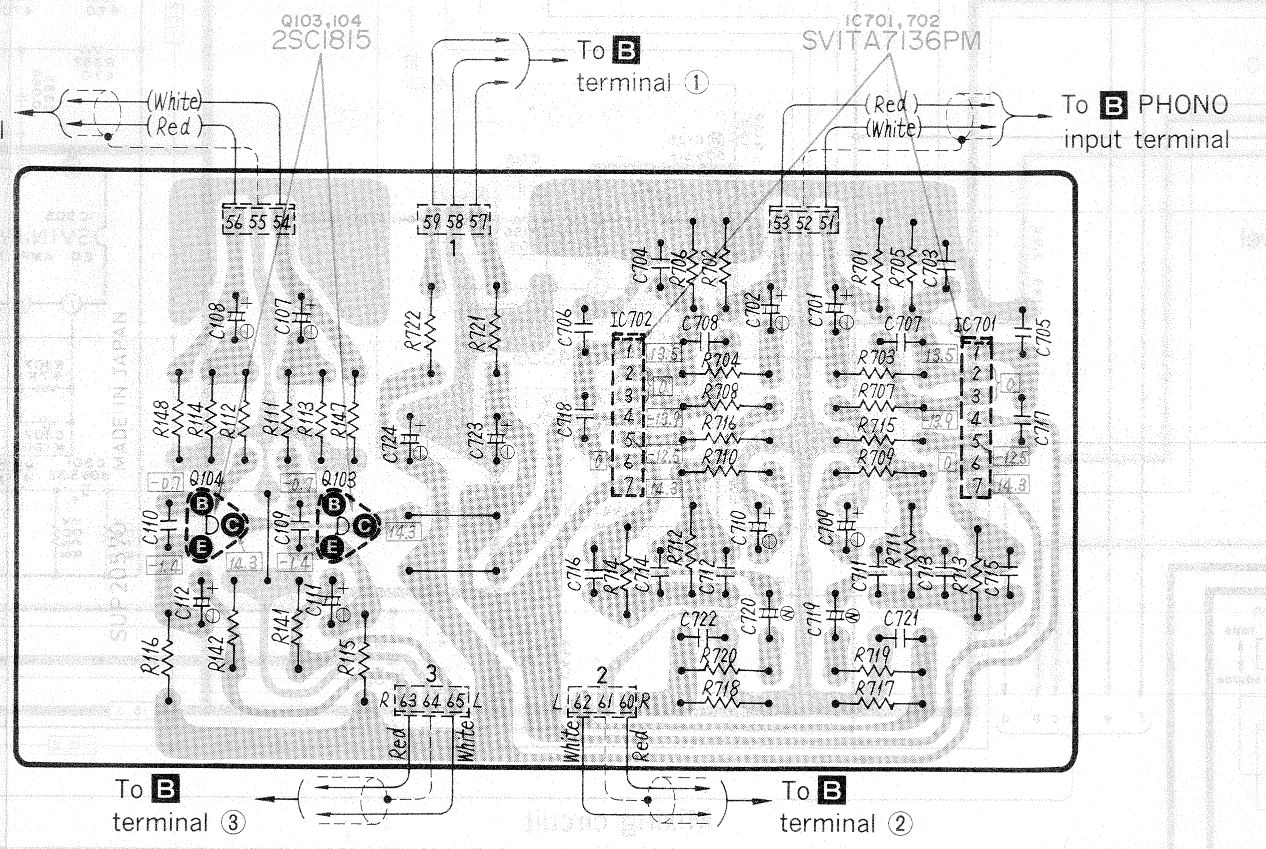
Q502 2SC1815

	no signal	150mV output
E	0	1.7
C	15.3	15.3
B	0	2.3

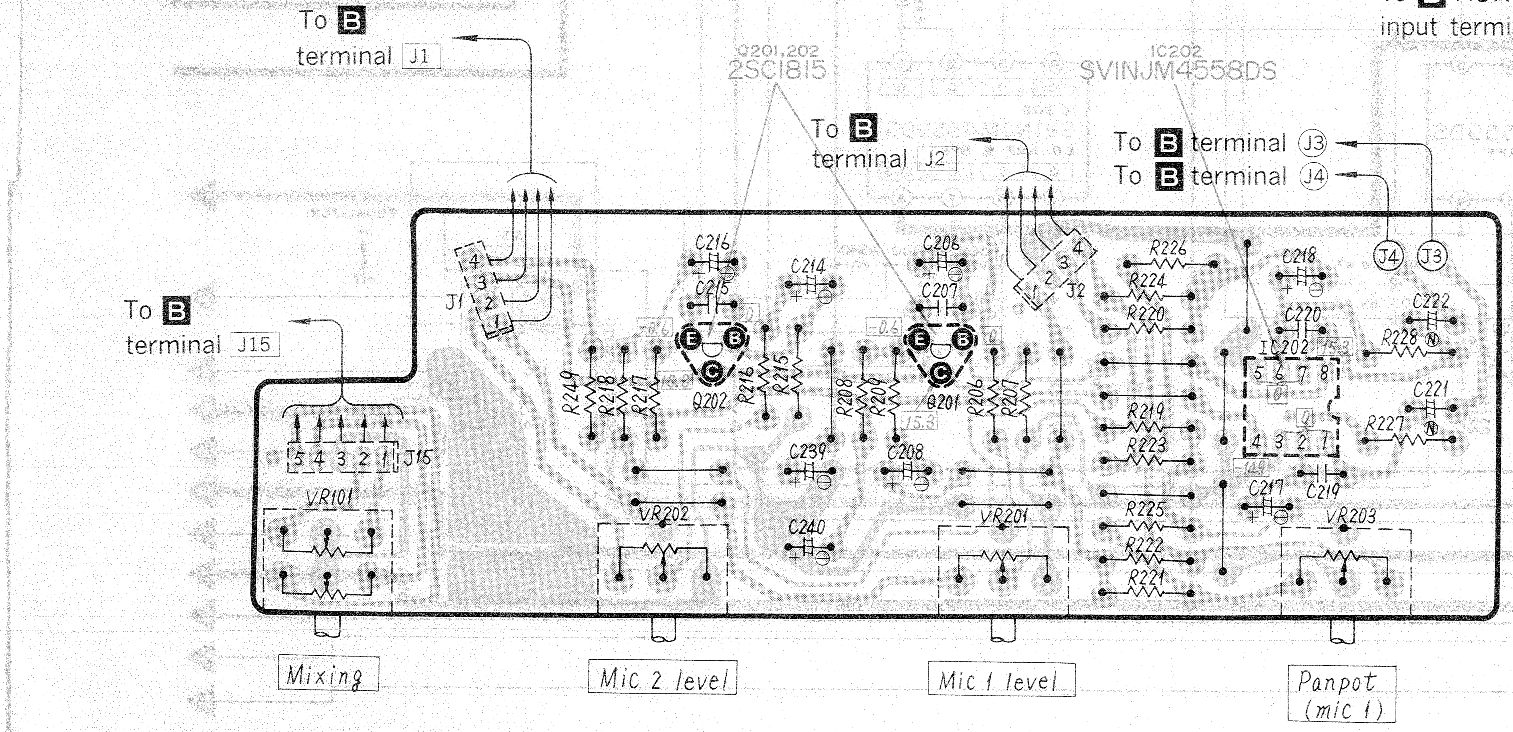
Q501 2SC1815

	no signal	150mV output
E	0	1.7
C	15.3	15.3
B	0	2.3

A Equalizer P.C.B.


Q103,104 2SC1815
IC701,702 SVITA7136PM
To B terminal ①
To B AUX input terminal
(White)
(Red)
To B PHONO input terminal
(Red)
(White)
56 55 54
59 58 57
53 52 51
IC702
IC701
Q104 Q103
SUP20570 MADE IN JAPAN
R 63 64 65 L
L 62 61 60 R
Red White
White Red
To B terminal ③
To B terminal ②

C Mic amp. P.C.B.


To B terminal J1
Q201,202 2SC1815
IC202 SVINJM4558DS
To B terminal J2
To B terminal J3
To B terminal J4
To B terminal J15
J1
J2
J15
Q202 Q201
IC202
VR101
VR202
VR201
VR203
Mixing
Mic 2 level
Mic 1 level
Panpot (mic 1)

■ REPLACEMENT PARTS LIST...Electric Parts

Notes:
1. Part numbers are indicated on must mechanical parts. Please use this part number of parts orders.
2. ⚠ indicates that only parts specified by the manufacturer be used for safety.
3. Bracket indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUIT			
IC101, 201, 305, 306		SVINJM4559DD	IC, Mic Amplifier, Mixing, Equalizer Amplifier & B.P.F.
IC202, 203, 301 ~ 304 401 ~ 403, 405, 406, 501, 502		SVINJM4558DS	IC, Echo Amplifier, Mixing, B.P.F. Ambience Amplifier, Noise Reduction
IC204, 404		MN3008	IC, B.B.D
IC205		MN3101	IC, B.B.D Driver
IC503 ~ 505		AN6875	IC, Dimension Output Level Display
IC701, 702		SVITA7136PM	IC, Equalizer Amplifier
TRANSISTORS			
Q101 ~ 106, 201, 202, 401 ~ 412, 501, 502, 604 ~ 607		2SC1815–Y	Transistor, Buffer, Phase Sifter, Mixing L.P.F. & Muting (Use in ranks Y or O)
Q503 ~ 507		2SA684–RNC	Transistor, Switching
Q601, 603		2SC1983	Transistor, Regulator
Q602		2SA748Q	Transistor, Regulator
DIODES			
D201, 401, 501 ~ 504, 516, 610 ~ 612		**MA162A**	Diode
D301, 402		SVDSLC–22UW5	Light Emitting Diode
D505 ~ 512, 515		LN317GP	Light Emitting Diode
D513, 514		LN417YP	Light Emitting Diode
D518		SVDMZ303A	Diode, 3V Zener
D601, 602, 605 ~ 608		**SVDSR1K2**	Rectifier
D603, 604		SVDMZ316A	Diode, 16V Zener
D609, 614		SVDMZ308C2	Diode, 8V Zener
D613		SVDSLC–26UR5	Light Emitting Diode, Power
TRANSFORMER			
T1	⚠	SLT5L167–W	Transformer, Power Source
VARIABLE RESISTORS			
VR101		EWGGRA090G14	Mixing Control, 10kΩ (G) x 2
VR201, 201		EVHHNA505B54	Mic Level Control, 50kΩ (B)
VR203		EWHHMA505G25	Panpot Control, 200kΩ (G)
VR204		EVHHNA531B14	Echo Control, 10kΩ (B)
VR301 ~ 305		EVB91S20W25S	Frequency Equalizer Control
VR401, 402		EWKF6AS59B14	AMB Control, 10kΩ, (B)
R247, 490		**EVTS3MA00B14**	Adjustment, 100kΩ, (B)
RELAY			
RLY601		SSY9	Relay
LAMP			
PL501 ~ 506		XAMR81S10	Lamp (0.15A, 8V)
FUSE			
F1	⚠	XBA2C10TR0	Fuse, Power Source (1A, 250V)
SWITCHES			
S1, 3, 4		SSH3001	Switch, Equalizer, Dimension, Position
S2, 5		SSH97	Switch, Selector, Tape Monitor
S6	⚠	ESB90117S	Switch, Power Source
S7	⚠	ESE372	Switch, Voltage Adjuster
RESISTORS			
R101, 102		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R103. 104		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R105, 106		**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ± 5%
R107, 108		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R109, 110		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R111, 112		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R113, 114		**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ± 5%
R115, 116		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R117, 118		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R119, 120		**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ± 5%
R121, 122		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R123, 124		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R125, 126		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%

Ref. No.		Part No.	Part Name & Description
R127, 128		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R129, 130		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
R131, 132		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R133, 134		**ERD25FJ272**	Carbon, 2.7kΩ, 1/4W, ± 5%
R135, 136		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R137, 138		**ERD25FJ561**	Carbon, 560Ω, 1/4W, ± 5%
R139 140		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R141, 142		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R143, 144		**ERD25FJ392**	Carbon, 3.9kΩ, 1/4W, ± 5%
R145, 146		**ERD25TJ474**	Carbon, 470kΩ, 1/4W, ± 5%
R147, 148		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R151		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R161, 162		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R163, 164		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R165, 166		**ERD25TJ394**	Carbon, 390kΩ, 1/4W, ± 5%
R167, 168		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R169, 170		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R201, 202		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R203		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
R204		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
R205		**ERD25TJ154**	Carbon, 150kΩ, 1/4W, ± 5%
R206		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R207		**ERD25TJ683**	Carbon, 68kΩ, 1/4W, ± 5%
R208		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R209		**ERD25FJ680**	Carbon, 68Ω, 1/4W, ± 5%
R210, 211		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R212		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
R213		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
R214		**ERD25TJ154**	Carbon, 150kΩ, 1/4W, ± 5%
R215		**ERD25TJ683**	Carbon, 68kΩ, 1/4W, ± 5%
R216		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R217		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R218		**ERD25FJ680**	Carbon, 68Ω, 1/4W, ± 5%
R219, 220		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R221, 222		**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%
R223, 224		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R225, 226		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R227, 228		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R229, 230		**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ± 5%
R231		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R232		**ERD25FJ272**	Carbon, 2.7kΩ, 1/4W, ± 5%
R233		**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%
R234		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R235		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R236		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R237		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R238		**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%
R239, 240		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R241, 242		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R243, 244		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R245		**ERD25FJ182**	Carbon, 1.8kΩ, 1/4W, ± 5%
R246	⚠	**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R248		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R249	⚠	**ERD25FJ470**	Carbon, 47Ω, 1/4W, ± 5%
R301, 302		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R303, 304		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R305, 306		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R307, 308		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R309, 310	⚠	**ERD25FJ151**	Carbon, 150Ω, 1/4W, ± 5%
R311, 312		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R313, 314		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R315, 316		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R317, 318		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R319, 320		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R321, 322		**ERD25FJ121**	Carbon, 120Ω, 1/4W, ± 5%
R323, 324		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R325, 326		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R327, 328		**ERD25FJ151**	Carbon, 150Ω, 1/4W, ± 5%
R329, 330		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R331, 332		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R333, 334		**ERD25FJ221**	Carbon, 220Ω, 1/4W, ± 5%
R335, 336		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R337, 338		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R339, 340		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R341		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R401, 402		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%

Ref. No.		Part No.	Part Name & Description
R403, 404		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R405, 406		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R407, 408		**ERD25TJ683**	Carbon, 68kΩ, 1/4W, ± 5%
R409, 410		**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ± 5%
R411, 412		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R413, 414		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R415, 416		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
R417, 418		**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%
R419, 420		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R421, 422		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R423, 424		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R425, 426		**ERD25TJ273**	Carbon, 27kΩ, 1/4W, ± 5%
R427, 428		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R429, 430		**ERD25TJ273**	Carbon, 27kΩ, 1/4W, ± 5%
R431, 432		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R433, 434		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R435, 436		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R437, 438		**ERD25TJ273**	Carbon, 27kΩ, 1/4W, ± 5%
R439, 440		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R441, 442		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R443, 444		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R445, 446		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R447, 448		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R449, 450		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R451, 452		**ERD25FJ182**	Carbon, 1.8kΩ, 1/4W, ± 5%
R453, 454		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R455		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R456		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R457, 468		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R459		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R460		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R461		**ERD25FJ562**	Carbon, 5.6kΩ, 1/4W, ± 5%
R462, 463		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R464, 465		**ERD25FJ822**	Carbon, 8.2kΩ, 1/4W, ± 5%
R466, 467		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R468		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R469, 470		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R471		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R472		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R473		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R474		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R475		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R476		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
R477		**ERD25FJ391**	Carbon, 390Ω, 1/4W, ± 5%
R478		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R479		**ERD25TJ824**	Carbon, 820kΩ, 1/4W, ± 5%
R480		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R481		**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ± 5%
R482		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R483, 484		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R485		**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%
R486		**ERD25TJ683**	Carbon, 68kΩ, 1/4W, ± 5%
R487, 488		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
R489		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
R491		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R492, 493	⚠	**ERD25FJ470**	Carbon, 47Ω, 1/4W, ± 5%
R494	⚠	**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R495		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R496		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R501, 502		**ERD25TJ273**	Carbon, 27kΩ, 1/4W, ± 5%
R503, 504		**ERD25TJ274**	Carbon, 270kΩ, 1/4W, ± 5%
R505, 506		**ERC14GK335**	Solid, 3.3MΩ, 1/4W, ±10%
R507, 508		**ERD25TJ824**	Carbon, 820kΩ, 1/4W, ± 5%
R509, 510		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R511, 512		**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ± 5%
R513, 514		**ERD25TJ564**	Carbon, 560kΩ, 1/4W, ± 5%
R515, 516		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R517		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R518		**ERD25FJ272**	Carbon, 2.7kΩ, 1/4W, ± 5%
R520		**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%
R521		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R522		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R523		**ERD25FJ821**	Carbon, 820Ω, 1/4W, ± 5%
R524, 525	⚠	**ERG1ANJ390**	Metal Oxide, 39Ω, 1W, ± 5%
R526, 527	⚠	**ERG1ANJ390**	Metal Oxide, 39Ω, 1W, ± 5%
R528		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R531	⚠	**ERG2ANJ680**	Metal Oxide, 68Ω, 2W, ± 5%
R601, 602	⚠	**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R603	⚠	**ERD25FJ3R9**	Carbon, 3.9Ω, 1/4W, ± 5%

Ref. No.		Part No.	Part Name & Description
R604, 605	⚠	**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R606	⚠	**ERD25FJ3R9**	Carbon, 3.9Ω, 1/4W, ± 5%
R607	⚠	**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R608	⚠	**ERD25FJ3R9**	Carbon, 3.9Ω, 1/4W, ± 5%
R609		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R610		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R611		**ERD25TJ564**	Carbon, 560kΩ, 1/4W, ± 5%
R612		**ERD25FJ561**	Carbon, 560Ω, 1/4W, ± 5%
R613		**ERD25FJ821**	Carbon, 820Ω, 1/4W, ± 5%
R614		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
R615		**ERD25FJ822**	Carbon, 8.2kΩ, 1/4W, ± 5%
R701, 702		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R703, 704		**ERD25FJ331**	Carbon, 330Ω, 1/4W, ± 5%
R705, 706		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R707, 708		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R709, 710		**ERD25FJ331**	Carbon, 330Ω, 1/4W, ± 5%
R711, 712		**ERO25CKF1502**	Metal Film, 15kΩ, 1/4W, ± 1%
R713, 714		**ERO25CKF2053**	Metal Film, 205kΩ, 1/4W, ± 1%
R715, 716		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R717, 718		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R719, 720		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R721, 722		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
CAPACITORS			
C1	⚠	ECKDKC103PF	Polyester, 0.01μF, 400VAC, $^{+100}_{-0}$%
C101, 102		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C103, 104		ECKD1H681KB	Ceramic, 680pF, 50V, ± 10%
C105, 106		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C107, 108		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C109, 110		ECKD1H681KB	Ceramic, 680pF, 50V, ± 10%
C111, 112		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C113, 114		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C115, 116		ECKD1H681KB	Ceramic, 680pF, 50V ± 10%
C117, 118		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C119, 120		ECCD1H101K	Ceramic, 100pF, 50V, ± 10%
C121, 122	⚠	ECEA1CN330S	Non-Polar Electrolytic, 33μF, 16V
C123		**ECEA1ES101**	Electrolytic, 100μF, 25V
C124		**ECEA1HS100**	Electrolytic, 10μF, 50V
C125, 126	⚠	ECEA1HN3R3S	Non-Polar Electrolytic, 3.3μF, 50V
C201		**ECEA50M3R3R**	Electrolytic, 3.3μF, 50V
C202		ECKD1H821KB	Ceramic, 820pF, 50V, ± 10%
C203		ECCD1H220K	Ceramic, 22pF, 50V, ± 10%
C204		ECCD1H100K	Ceramic, 10pF, 50V, ± 10%
C205	⚠	ECEA1CN100S	Non-Polar Electrolytic, 10μF, 16V
C206		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C207		ECCD1H221K	Ceramic, 220pF, 50V, ± 10%
C208		**ECEA50ZR33**	Electrolytic, 0.33μF, 50V
C209		**ECEA50M3R3R**	Electrolytic, 3.3μF, 50V
C210		ECKD1H821KB	Ceramic, 820pF, 50V, ± 10%
C211		ECCD1H220K	Ceramic, 22pF, 50V, ± 10%
C212		ECCD1H100K	Ceramic, 10pF, 50V, ± 10%
C213	⚠	ECEA1CN100S	Non-Polar Electrolytic, 10μF, 16V
C214		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C215		ECCD1H221K	Ceramic, 220pF, 50V, ± 10%
C216		**ECEA50ZR33**	Electrolytic, 0.33μF, 50V
C217, 218		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C219, 220		ECCD1H100K	Ceramic, 10pF, 50V, ± 10%
C221, 222		ECEA1CN100S	Non-Polar Electrolytic, 10μF, 16V
C223		**ECEA1HS100**	Electrolytic, 10μF, 50V
C224		ECKD1H391KB	Ceramic, 390pF, 50V, ± 10%
C225		**ECEA25Z4R7**	Electrolytic, 4.7μF, 25V
C226		ECQM1H473JZ	Polyester, 0.047μF, 50V, ± 5%
C227		ECQM1H472JZ	Polyester, 0.0047μF, 50V, ± 5%
C228		ECQS1471JZ	Polystyrene, 470pF, 50V, ± 5%
C229		ECQM1H472JZ	Polyester, 0.0047μF, 50V, ± 5%
C230		ECQM1H122JZ	Polyester, 0.0012μF, 50V, ± 5%
C231		ECQM1H223JZ	Polyester, 0.022μF, 50V, ± 5%
C232		ECQM1H683JZ	Polyester, 0.068μF, 50V, ± 5%
C233		ECQM1H102JZ	Polyester, 0.001μF, 50V, ± 5%
C234		ECQM1H473JZ	Polyester, 0.047μF, 50V, ± 5%
C235		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C236		**ECEA1CS221**	Electrolytic, 220μF, 16V
C237, 238		**ECEA1HS100**	Electrolytic, 10μF, 50V
C239		**ECEA1HS100**	Electrolytic, 10μF, 50V,
C240		**ECEA1CS221**	Electrolytic, 220μF, 16V
C301, 302		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C303, 304		**ECEA1AS470**	Electrolytic, 47μF, 10V
C305, 306		**ECEA1AS470**	Electrolytic, 47μF, 10V

Ref. No.	
C307, 308	
C309, 310	
C311, 312	
C313, 314	
C315, 316	
C317, 318	
C319, 320	
C321, 322	
C323, 324	
C325, 326	
C327, 328	
C329, 330	
C331, 332	
C333, 334	
C335, 336	
C401, 402	
C403, 404	
C405, 406	
C407, 408	
C409, 410	
C411, 412	
C413, 414	⚠
C415	
C416	
C417	
C418	
C419	
C420	
C421	
C422	
C423	
C424	
C425	
C426	
C427	
C428	
C429	
C430	⚠
C431	
C432	
C433	
C434	
C435, 436	
C437	
C438, 439	
C440	
C501, 502	
C503, 504	
C505, 506	
C507	
C508, 509	
C510, 511	
C512, 513	
C514, 515	
C516	
C517	
C601	
C602, 603	
C604	
C605, 606	
C607	
C608	
C609	
C610	
C611, 612	
C613, 614	
C615	
C701, 702	
C703, 704	
C705, 706	
C707, 708	
C709, 710	
C711, 712	
C713, 714	
C715, 716	
C717, 718	
C719, 720	⚠
C721, 722	
C723, 724	

ric Parts

3. Bracket indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Ref. No.		Part No.	Part Name & Description
127, 128		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
129, 130		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
131, 132		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
133, 134		**ERD25FJ272**	Carbon, 2.7kΩ, 1/4W, ± 5%
135, 136		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
137, 138		**ERD25FJ561**	Carbon, 560Ω, 1/4W, ± 5%
139, 140		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
141, 142		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
143, 144		**ERD25FJ392**	Carbon, 3.9kΩ, 1/4W, ± 5%
145, 146		**ERD25TJ474**	Carbon, 470kΩ, 1/4W, ± 5%
147, 148		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
151		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
161, 162		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
163, 164		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
165, 166		**ERD25TJ394**	Carbon, 390kΩ, 1/4W, ± 5%
167, 168		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
169, 170		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
201, 202		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
203		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
204		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
205		**ERD25TJ154**	Carbon, 150kΩ, 1/4W, ± 5%
206		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
207		**ERD25TJ683**	Carbon, 68kΩ, 1/4W, ± 5%
208		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
209		**ERD25FJ680**	Carbon, 68Ω, 1/4W, ± 5%
210, 211		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
212		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
213		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
214		**ERD25TJ154**	Carbon, 150kΩ, 1/4W, ± 5%
215		**ERD25TJ683**	Carbon, 68kΩ, 1/4W, ± 5%
216		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
217		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
218		**ERD25FJ680**	Carbon, 68Ω, 1/4W, ± 5%
219, 220		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
221, 222		**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%
223, 224		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
225, 226		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
227, 228		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
229, 230		**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ± 5%
231		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
232		**ERD25FJ272**	Carbon, 2.7kΩ, 1/4W, ± 5%
233		**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%
234		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
235		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
236		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
237		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
238		**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%
239, 240		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
241, 242		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
243, 244		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
245		**ERD25FJ182**	Carbon, 1.8kΩ, 1/4W, ± 5%
246	⚠	**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
248		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
249	⚠	**ERD25FJ470**	Carbon, 47Ω, 1/4W, ± 5%
301, 302		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
303, 304		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
305, 306		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
307, 308		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
309, 310	⚠	**ERD25FJ151**	Carbon, 150Ω, 1/4W, ± 5%
311, 312		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
313, 314		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
315, 316		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
317, 318		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
319, 320		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
321, 322		**ERD25FJ121**	Carbon, 120Ω, 1/4W, ± 5%
323, 324		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
325, 326		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
327, 328		**ERD25FJ151**	Carbon, 150Ω, 1/4W, ± 5%
329, 330		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
331, 332		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
333, 334		**ERD25FJ221**	Carbon, 220Ω, 1/4W, ± 5%
335, 336		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
337, 338		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
339, 340		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
341		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
401, 402		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%

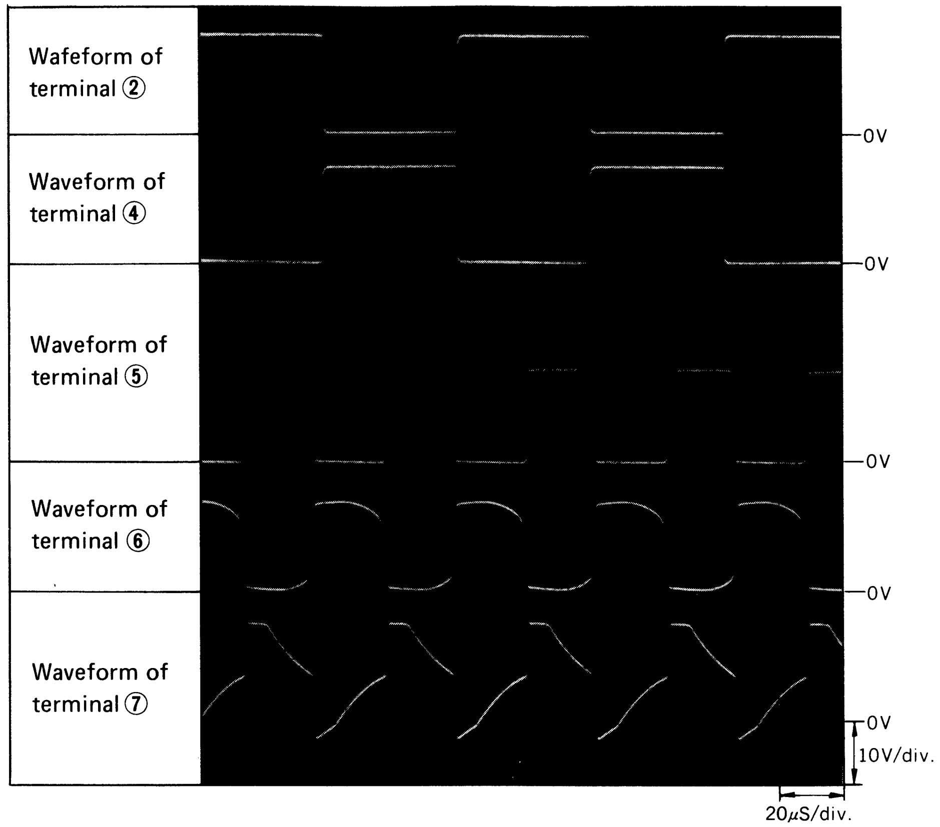
Ref. No.		Part No.	Part Name & Description
R403, 404		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R405, 406		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R407, 408		**ERD25TJ683**	Carbon, 68kΩ, 1/4W, ± 5%
R409, 410		**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ± 5%
R411, 412		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R413, 414		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R415, 416		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
R417, 418		**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%
R419, 420		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R421, 422		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R423, 424		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R425, 426		**ERD25TJ273**	Carbon, 27kΩ, 1/4W, ± 5%
R427, 428		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R429, 430		**ERD25TJ273**	Carbon, 27kΩ, 1/4W, ± 5%
R431, 432		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R433, 434		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R435, 436		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R437, 438		**ERD25TJ273**	Carbon, 27kΩ, 1/4W, ± 5%
R439, 440		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R441, 442		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R443, 444		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R445, 446		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R447, 448		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R449, 450		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R451, 452		**ERD25FJ182**	Carbon, 1.8kΩ, 1/4W, ± 5%
R453, 454		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R455		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R456		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R457, 458		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R459		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R460		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R461		**ERD25FJ562**	Carbon, 5.6kΩ, 1/4W, ± 5%
R462, 463		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R464, 465		**ERD25FJ822**	Carbon, 8.2kΩ, 1/4W, ± 5%
R466, 467		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R468		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R469, 470		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R471		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R472		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R473		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R474		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R475		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R476		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
R477		**ERD25FJ391**	Carbon, 390Ω, 1/4W, ± 5%
R478		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R479		**ERD25TJ824**	Carbon, 820kΩ, 1/4W, ± 5%
R480		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R481		**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ± 5%
R482		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R483, 484		**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%
R485		**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%
R486		**ERD25TJ683**	Carbon, 68kΩ, 1/4W, ± 5%
R487, 488		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
R489		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
R491		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R492, 493	⚠	**ERD25FJ470**	Carbon, 47Ω, 1/4W, ± 5%
R494	⚠	**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R495		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R496		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R501, 502		**ERD25TJ273**	Carbon, 27kΩ, 1/4W, ± 5%
R503, 504		**ERD25TJ274**	Carbon, 270kΩ, 1/4W, ± 5%
R505, 506		**ERC14GK335**	Solid, 3.3MΩ, 1/4W, ±10%
R507, 508		**ERD25TJ824**	Carbon, 820kΩ, 1/4W, ± 5%
R509, 510		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R511, 512		**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ± 5%
R513, 514		**ERD25TJ564**	Carbon, 560kΩ, 1/4W, ± 5%
R515, 516		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R517		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R518		**ERD25FJ272**	Carbon, 2.7kΩ, 1/4W, ± 5%
R520		**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%
R521		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R522		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R523		**ERD25FJ821**	Carbon, 820Ω, 1/4W, ± 5%
R524, 525	⚠	**ERG1ANJ390**	Metal Oxide, 39Ω, 1W, ± 5%
R526, 527	⚠	**ERG1ANJ390**	Metal Oxide, 39Ω, 1W, ± 5%
R528		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R531	⚠	**ERG2ANJ680**	Metal Oxide, 68Ω, 2W, ± 5%
R601, 602	⚠	**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R603	⚠	**ERD25FJ3R9**	Carbon, 3.9Ω, 1/4W, ± 5%

Ref. No.		Part No.	Part Name & Description
R604, 605	⚠	**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R606	⚠	**ERD25FJ3R9**	Carbon, 3.9Ω, 1/4W, ± 5%
R607	⚠	**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R608	⚠	**ERD25FJ3R9**	Carbon, 3.9Ω, 1/4W, ± 5%
R609		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R610		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R611		**ERD25TJ564**	Carbon, 560kΩ, 1/4W, ± 5%
R612		**ERD25FJ561**	Carbon, 560Ω, 1/4W, ± 5%
R613		**ERD25FJ821**	Carbon, 820Ω, 1/4W, ± 5%
R614		**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ± 5%
R615		**ERD25FJ822**	Carbon, 8.2kΩ, 1/4W, ± 5%
R701, 702		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R703, 704		**ERD25FJ331**	Carbon, 330Ω, 1/4W, ± 5%
R705, 706		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R707, 708		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
R709, 710		**ERD25FJ331**	Carbon, 330Ω, 1/4W, ± 5%
R711, 712		**ERO25CKF1502**	Metal Film, 15kΩ, 1/4W, ± 1%
R713, 714		**ERO25CKF2053**	Metal Film, 205kΩ, 1/4W, ± 1%
R715, 716		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R717, 718		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R719, 720		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R721, 722		**ERD25FJ101**	Carbon, 100Ω, 1/4W, ± 5%
CAPACITORS			
C1	⚠	ECKDKC103PF	Polyester, 0.01μF, 400VAC, $^{+100}_{-0}$%
C101, 102		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C103, 104		ECKD1H681KB	Ceramic, 680pF, 50V, ± 10%
C105, 106		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C107, 108		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C109, 110		ECKD1H681KB	Ceramic, 680pF, 50V, ± 10%
C111, 112		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C113, 114		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C115, 116		ECKD1H681KB	Ceramic, 680pF, 50V ± 10%
C117, 118		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C119, 120		ECCD1H101K	Ceramic, 100pF, 50V, ± 10%
C121, 122	⚠	ECEA1CN330S	Non-Polar Electrolytic, 33μF, 16V
C123		**ECEA1ES101**	Electrolytic, 100μF, 25V
C124		**ECEA1HS100**	Electrolytic, 10μF, 50V
C125, 126	⚠	ECEA1HN3R3S	Non-Polar Electrolytic, 3.3μF, 50V
C201		**ECEA50M3R3R**	Electrolytic, 3.3μF, 50V
C202		ECKD1H821KB	Ceramic, 820pF, 50V, ± 10%
C203		ECCD1H220K	Ceramic, 22pF, 50V, ± 10%
C204		ECCD1H100K	Ceramic, 10pF, 50V, ± 10%
C205	⚠	ECEA1CN100S	Non-Polar Electrolytic, 10μF, 16V
C206		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C207		ECCD1H221K	Ceramic, 220pF, 50V, ± 10%
C208		**ECEA50ZR33**	Electrolytic, 0.33μF, 50V
C209		**ECEA50M3R3R**	Electrolytic, 3.3μF, 50V
C210		ECKD1H821KB	Ceramic, 820pF, 50V, ± 10%
C211		ECCD1H220K	Ceramic, 22pF, 50V, ± 10%
C212		ECCD1H100K	Ceramic, 10pF, 50V, ± 10%
C213	⚠	ECEA1CN100S	Non-Polar Electrolytic, 10μF, 16V
C214		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C215		ECCD1H221K	Ceramic, 220pF, 50V, ± 10%
C216		**ECEA50ZR33**	Electrolytic, 0.33μF, 50V
C217, 218		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C219, 220		ECCD1H100K	Ceramic, 10pF, 50V, ± 10%
C221, 222		ECEA1CN100S	Non-Polar Electrolytic, 10μF, 16V
C223		**ECEA1HS100**	Electrolytic, 10μF, 50V
C224		ECKD1H391KB	Ceramic, 390pF, 50V, ± 10%
C225		**ECEA25Z4R7**	Electrolytic, 4.7μF, 25V
C226		ECQM1H473JZ	Polyester, 0.047μF, 50V, ± 5%
C227		ECQM1H472JZ	Polyester, 0.0047μF, 50V, ± 5%
C228		ECQS1471JZ	Polystyrene, 470pF, 50V, ± 5%
C229		ECQM1H472JZ	Polyester, 0.0047μF, 50V, ± 5%
C230		ECQM1H122JZ	Polyester, 0.0012μF, 50V, ± 5%
C231		ECQM1H223JZ	Polyester, 0.022μF, 50V, ± 5%
C232		ECQM1H683JZ	Polyester, 0.068μF, 50V, ± 5%
C233		ECQM1H102JZ	Polyester, 0.001μF, 50V, ± 5%
C234		ECQM1H473JZ	Polyester, 0.047μF, 50V, ± 5%
C235		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C236		**ECEA1CS221**	Electrolytic, 220μF, 16V
C237, 238		**ECEA1HS100**	Electrolytic, 10μF, 50V
C239		**ECEA1HS100**	Electrolytic, 10μF, 50V,
C240		**ECEA1CS221**	Electrolytic, 220μF, 16V
C301, 302		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C303, 304		**ECEA1AS470**	Electrolytic, 47μF, 10V
C305, 306		**ECEA1AS470**	Electrolytic, 47μF, 10V

Ref. No.		Part No.	Part Name & Description
C307, 308		ECCD1H181K	Ceramic, 180pF, 50V, ± 10%
C309, 310		ECEA1CN330S	Non-Polar Electrolytic, 33μF, 16V
C311, 312		**ECEA50Z1**	Electrolytic, 1μF, 50V
C313, 314		**ECEA50ZR22**	Electrolytic, 0.22μF, 50V
C315, 316		**ECEA1HS100**	Electrolytic, 10μF, 50V
C317, 318		**ECEA1HS100**	Electrolytic, 10μF, 50V
C319, 320		**ECEA50ZR33**	Electrolytic, 0.33μF, 50V
C321, 322		**ECEA25Z4R7**	Electrolytic, 4.7μF, 25V
C323, 324		**ECEA50Z1**	Electrolytic, 1μF, 50V
C325, 326		**ECEA50Z1**	Electrolytic, 1μF, 50V
C327, 328		ECQM1H223JZ	Polyester, 0.022μF, 50V, ± 5%
C329, 330		**ECEA50ZR33**	Electrolytic, 0.33μF, 50V
C331, 332		ECQM1H682JZ	Polyester, 0.0068μF, 50V, ± 5%
C333, 334		ECQM1H683JZ	Polyester, 0.068μF, 50V, ± 5%
C335, 336		**ECEA1HS100**	Electrolytic, 10μF, 50V
C401, 402		**ECEA50ZR47**	Electrolytic, 0.47μF, 50V
C403, 404		ECQM1H183JZ	Polyester, 0.018μF, 50V, ± 5%
C405, 406		ECQM1H563JZ	Polyester, 0.056μF, 50V, ± 5%
C407, 408		ECQM1H472JZ	Polyester, 0.0047μF, 50V, ± 5%
C409, 410		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C411, 412		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C413, 414	⚠	ECEA1CN100S	Non-Polar Electrolytic, 10μF, 16V
C415		ECQM1H473JZ	Polyester, 0.047μF, 50V, ± 5%
C416		ECQM1H393JZ	Polyester, 0.039μF, 50V, ± 5%
C417		**ECEA1CS330**	Electrolytic, 33μF, 16V
C418		ECQM1H822JZ	Polyester, 0.0082μF, 50V, ± 5%
C419		ECKD1H561KB	Ceramic, 560pF, 50V, ± 10%
C420		ECQM1H822JZ	Polyester, 0.0082μF, 50V, ± 5%
C421		ECKD1H561KB	Ceramic, 560pF, 50V, ± 10%
C422		ECQM1H562JZ	Polyester, 0.0056μF, 50V, ± 5%
C423		ECQM1H472JZ	Polyester, 0.0047μF, 50V, ± 5%
C424		ECQM1H822JZ	Polyester, 0.0082μF, 50V, ± 5%
C425		ECQM1H392JZ	Polyester, 0.0039μF, 50V, ± 5%
C426		ECQM1H822JZ	Polyester, 0.0082μF, 50V, ± 5%
C427		ECQM1H332JZ	Polyester, 0.0033μF, 50V, ± 5%
C428		**ECEA50ZR15**	Electrolytic, 0.15μF, 50V
C429		ECQM1H154KZ	Polyester, 0.15μF, 50V, ± 10%
C430	⚠	ECEA1HN3R3S	Non-Polar Electrolytic, 3.3μF, 50V
C431		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C432		**ECEA25Z4R7**	Electrolytic, 4.7μF, 25V
C433		**ECEA50ZR15**	Electrolytic, 0.15μF, 50V
C434		ECQM1H393JZ	Polyester, 0.039μF, 50V, ± 5%
C435, 436		**ECEA1CS221**	Electrolytic, 220μF, 16V
C437		**ECEA1ES470**	Electrolytic, 47μF, 25V
C438, 439		**ECEA1HS100**	Electrolytic, 10μF, 50V
C440		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C501, 502		**ECEA50Z1**	Electrolytic, 1μF, 50V
C503, 504		**ECEA50ZR68**	Electrolytic, 0.68μF, 50V
C505, 506		**ECEA50Z1**	Electrolytic, 1μF, 50V
C507		**ECEA50ZR68**	Electrolytic, 0.68μF, 50V
C508, 509		**ECEA1HS100**	Electrolytic, 10μF, 50V
C510, 511		**ECEA1HS100**	Electrolytic, 10μF, 50V
C512, 513		**ECEA1HS100**	Electrolytic, 10μF, 50V
C514, 515		ECKD1H103MD	Ceramic, 0.01μF, 50V, ± 20%
C516		ECKD1H102MD	Ceramic, 0.001μF, 50V, ± 20%
C517		**ECEA1HS100**	Electrolytic, 10μF, 50V
C601		**ECEA1ES222**	Electrolytic, 2200μF, 25V
C602, 603		**ECEA1ES221**	Electrolytic, 220μF, 25V
C604		**ECEA1ES222**	Electrolytic, 2200μF, 25V
C605, 606		**ECEA1ES221**	Electrolytic, 220μF, 25V
C607		**ECEA1ES332**	Electrolytic, 3300μF, 25V
C608		**ECEA1CS330**	Electrolytic, 33μF, 16V
C609		**ECEA50Z2R2**	Electrolytic, 2.2μF, 50V
C610		**ECEA1AS101**	Electrolytic, 100μF, 10V
C611, 612		ECKD2H103PE	Ceramic, 0.01μF, 500V,
C613, 614		ECKD2H103PE	Ceramic, 0.01μF, 500V,
C615		**ECEA1ES470**	Electrolytic, 47μF, 25V
C701, 702		**ECEA50M3R3R**	Electrolytic, 3.3μF, 50V
C703, 704		ECCD1H470K	Ceramic, 47pF, 50V, ± 10%
C705, 706		ECKD1H331KB	Ceramic, 330pF, 50V, ± 10%
C707, 708		ECKD1H681KB	Ceramic, 680pF, 50V, ± 10%
C709, 710		**ECEA1CS330**	Electrolytic, 33μF, 16V
C711, 712		ECKD1H390KB	Ceramic, 390pF, 50V, ± 10%
C713, 714		ECQM1H472JZ	Polyester, 0.0047μF, 50V, ± 5%
C715, 716		ECQM1H183JZ	Polyester, 0.018μF, 50V, ± 5%
C717, 718		ECCD1H330K	Ceramic, 33pF, 50V, ± 10%
C719, 720	⚠	ECEA1HN010S	Non-Polar Electrolytic, 1μF, 50V
C721, 722		ECKD1H681KB	Ceramic, 680pF, 50V, ± 10%
C723, 724		**ECEA1ES101**	Electrolytic, 100μF, 25V

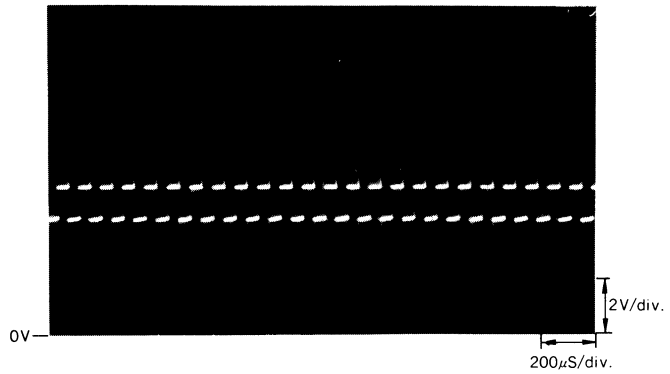
■ WAVEFORM

• Waveform of each terminal of IC205 (MN3101)

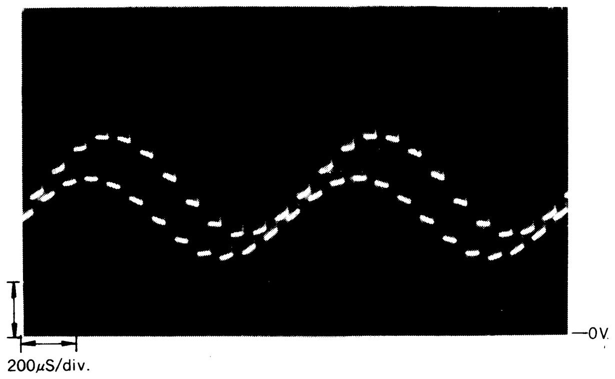


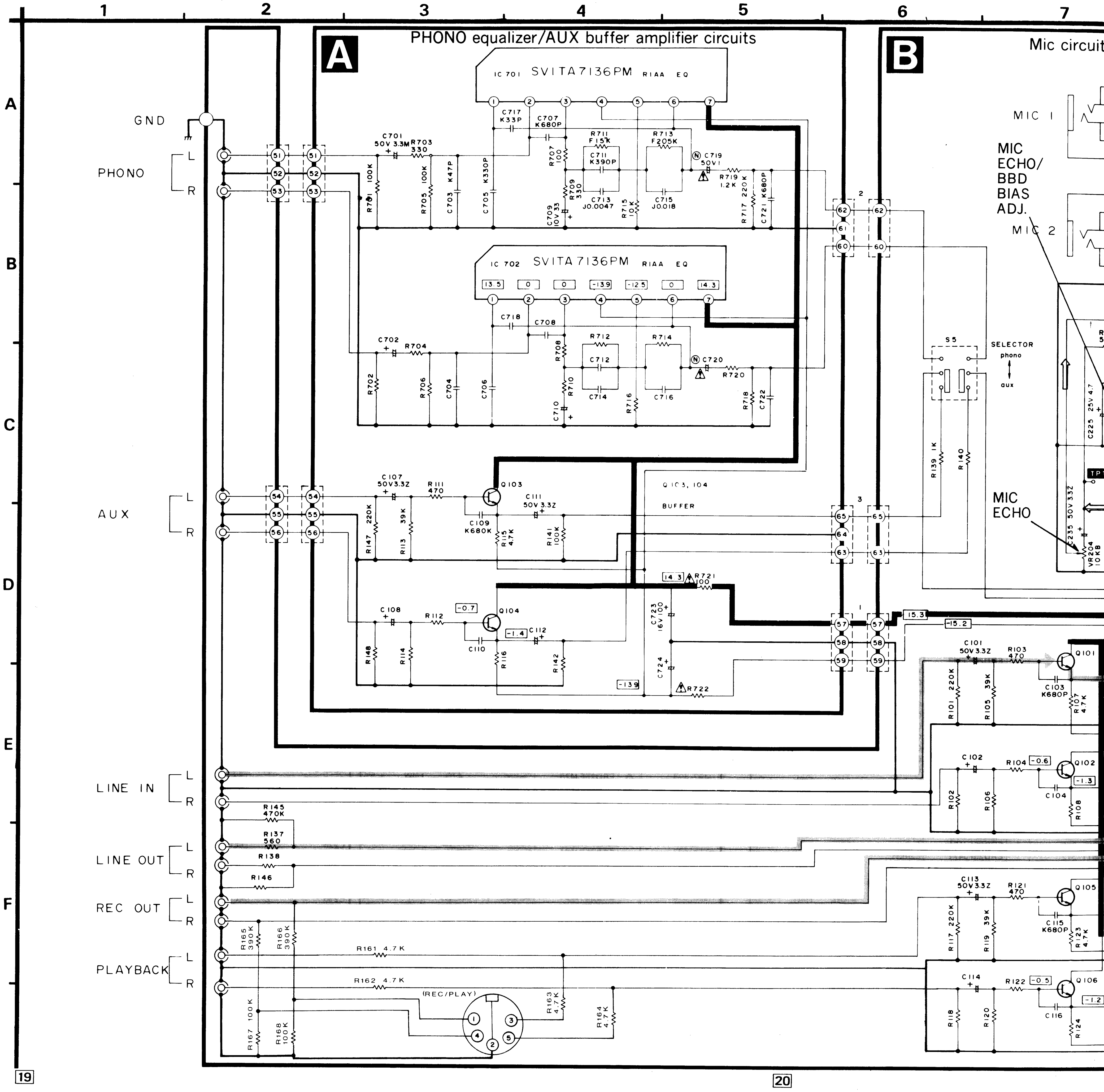
• Waveform of terminals 3 and 4 of IC204, 404 (MN3008)

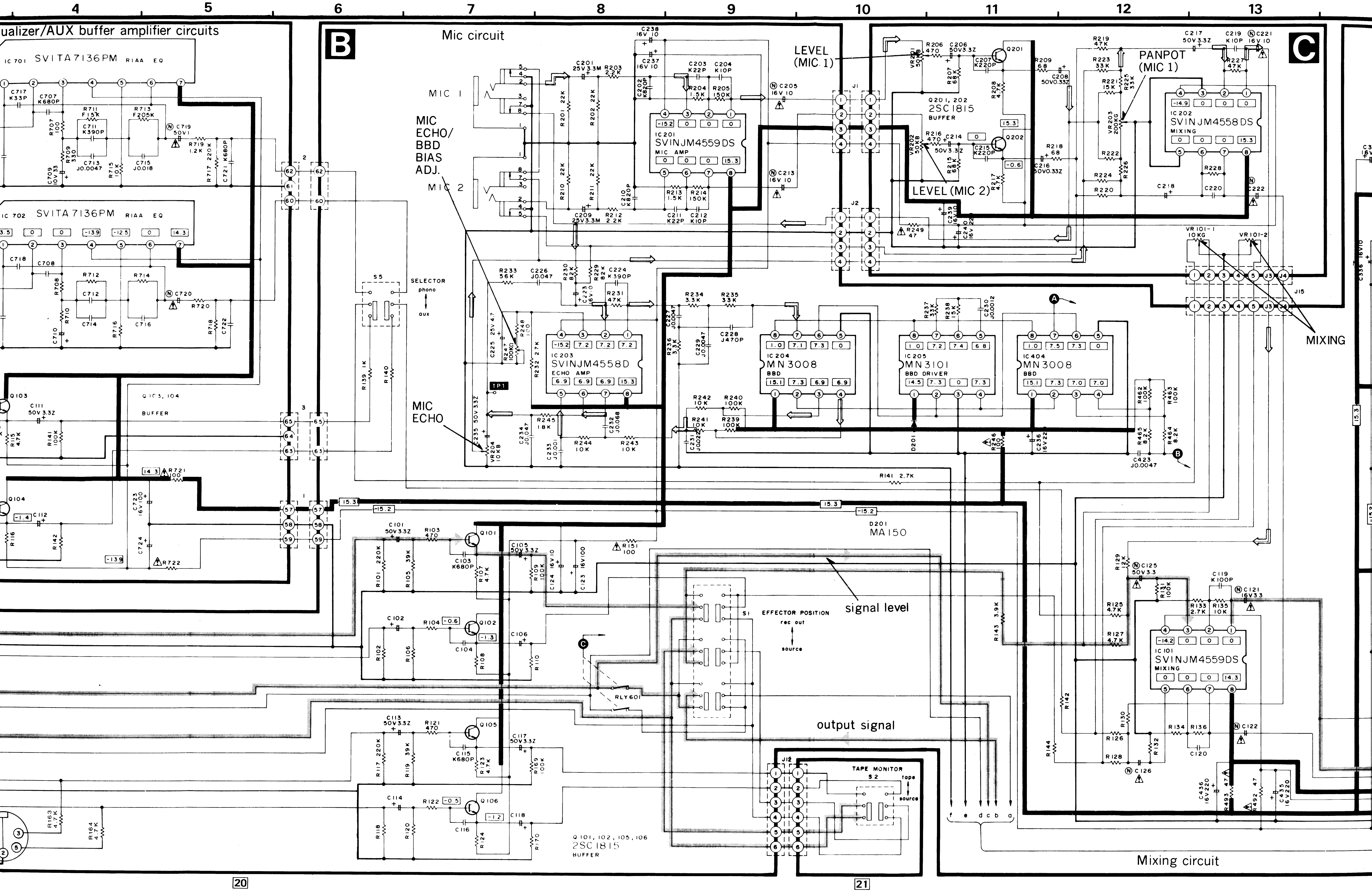
(No input signal)

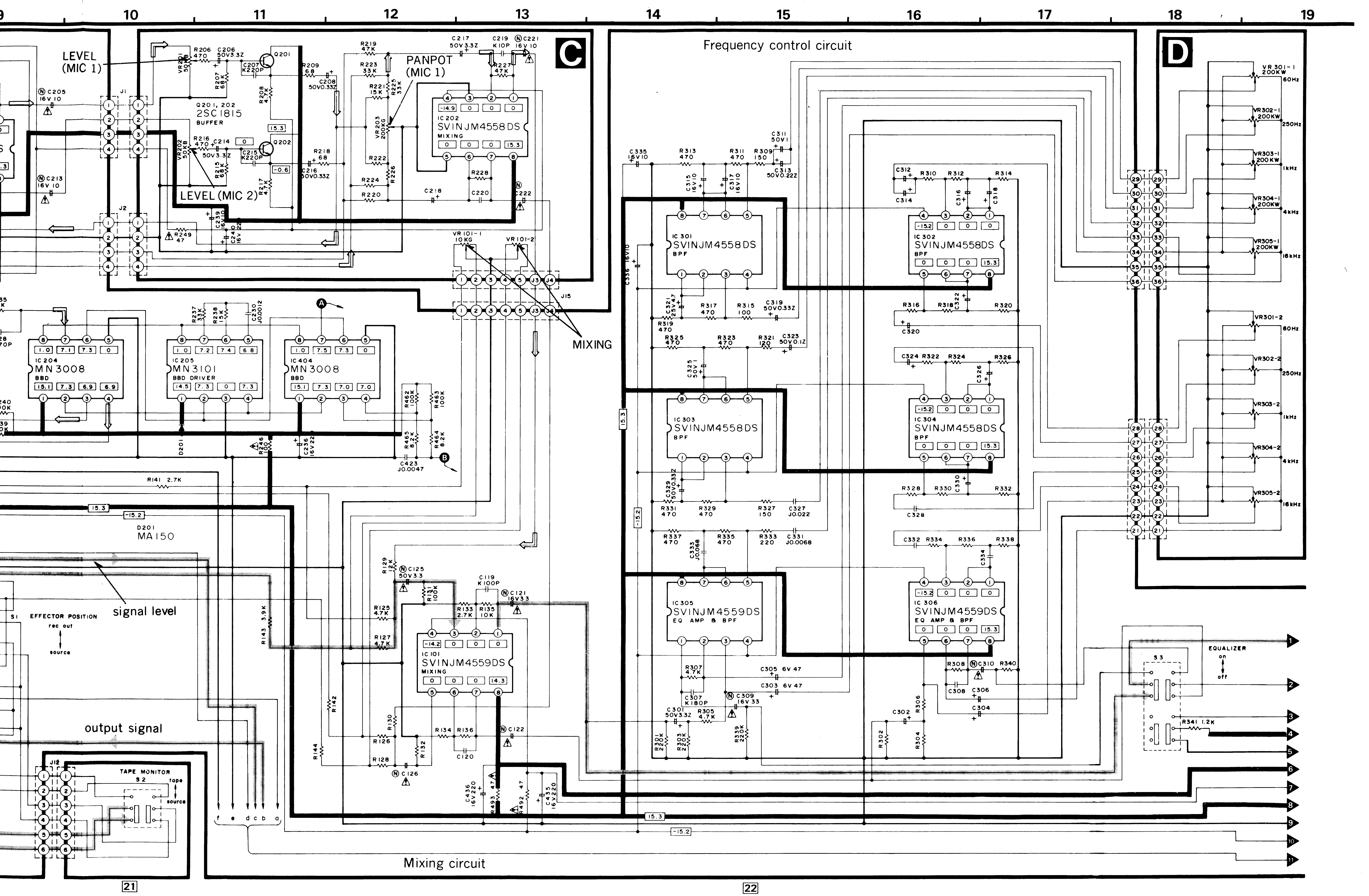


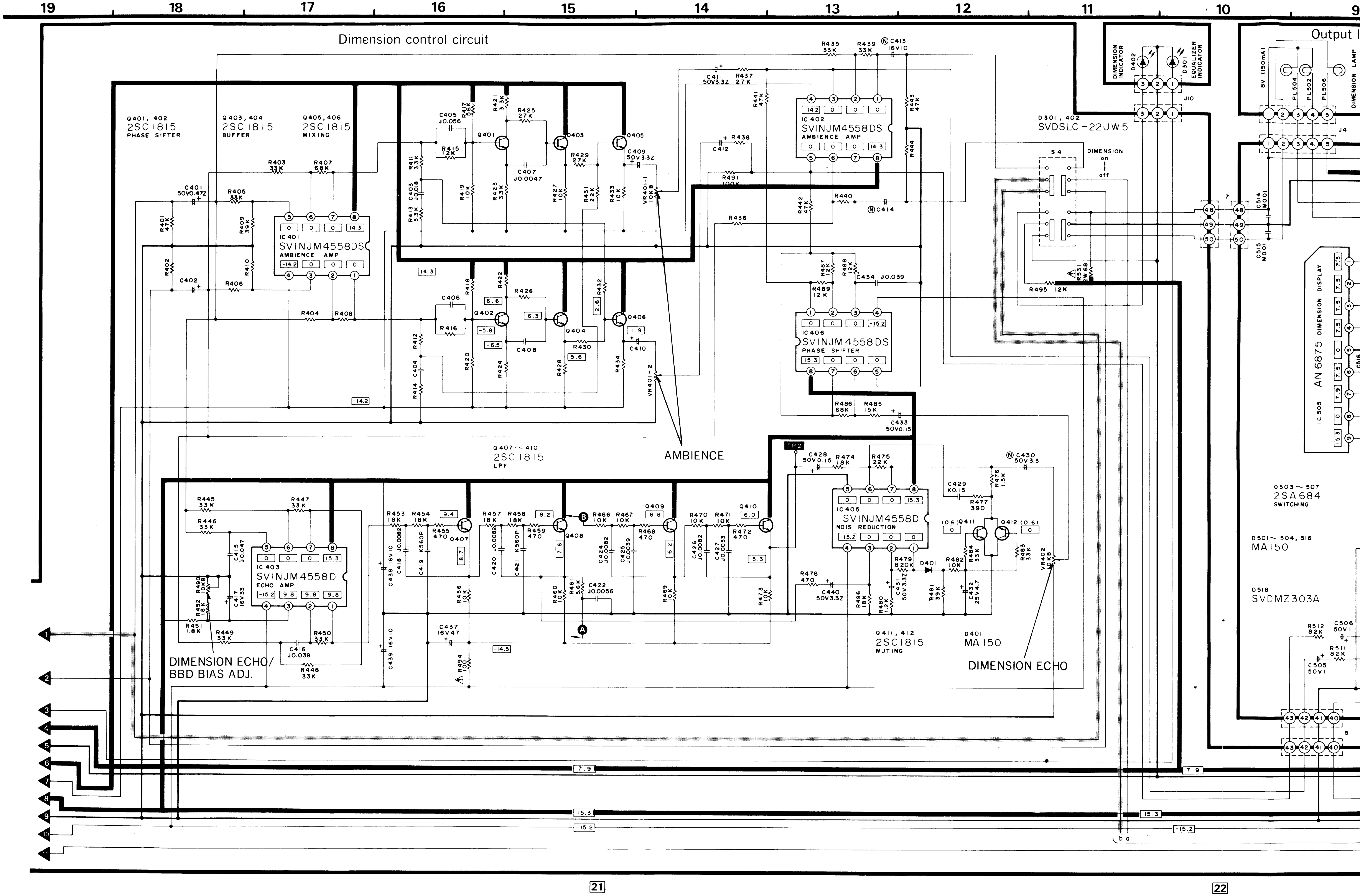
(Input signal (1 kHz)

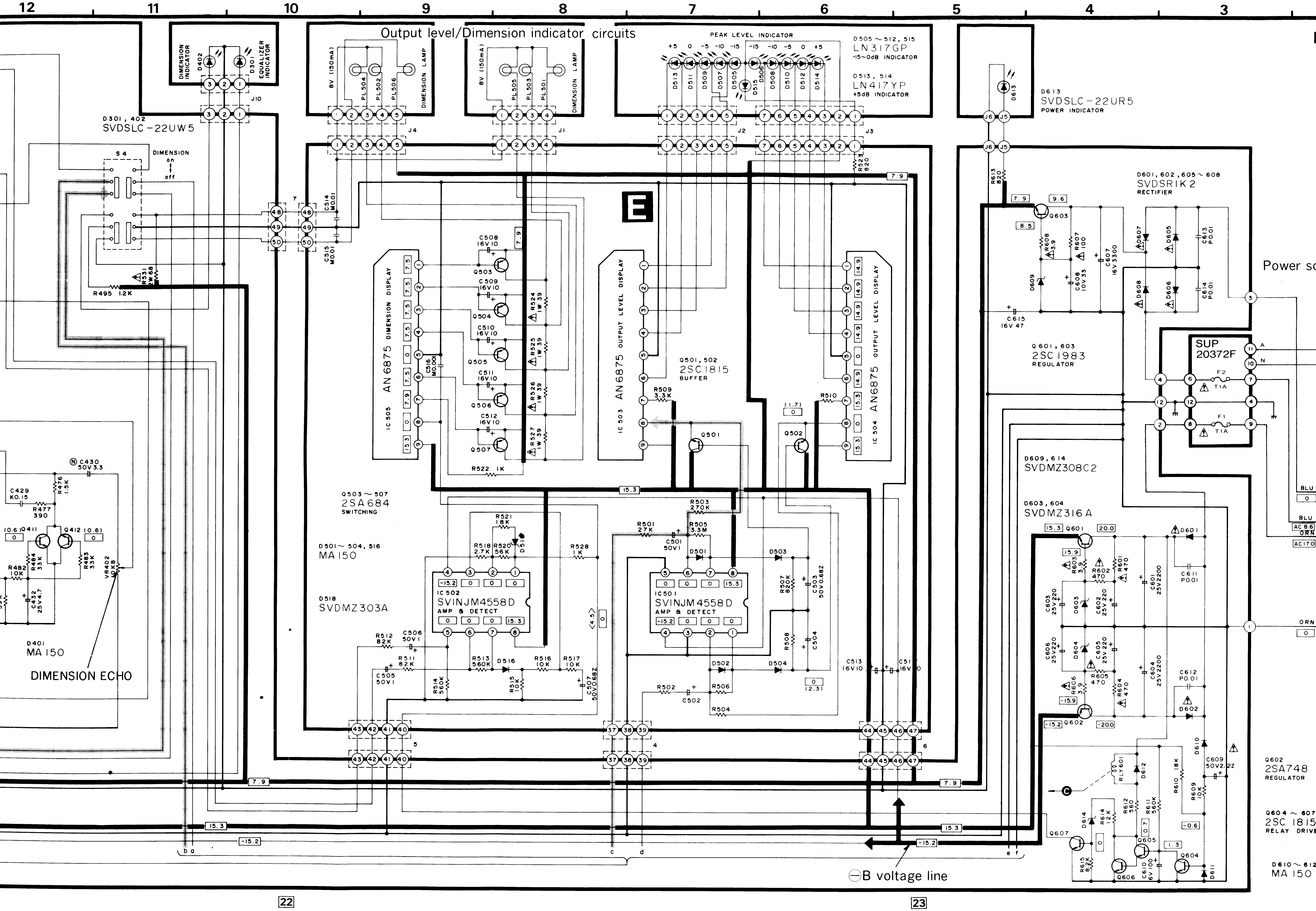



1
2
3
4
5
6
7
A
B
C
D
E
F
A
PHONO equalizer/AUX buffer amplifier circuits
B
Mic circuit
IC 701 SVITA7136PM RIAA EQ
IC 702 SVITA7136PM RIAA EQ
GND
PHONO L R
AUX L R
LINE IN L R
LINE OUT L R
REC OUT L R
PLAYBACK L R
MIC 1
MIC 2
MIC ECHO/BBD BIAS ADJ.
MIC ECHO
S5
SELECTOR phono aux
Q103, 104 BUFFER
Q101
Q102
Q105
Q106
(REC/PLAY)
R145 470K
R137 560
R138
R146
R161 4.7K
R162 4.7K
R163 4.7K
R164 4.7K
R165 390K
R166 390K
R167 100K
R168 100K
VR204 10KB
14.3
15.3
-15.2
-13.9
-0.7
-1.4
-0.6
-1.3
-0.5
-1.2


4
5
6
7
8
9
10
11
12
13
ualizer/AUX buffer amplifier circuits
IC 701 SVITA7136PM RIAA EQ
IC 702 SVITA7136PM RIAA EQ
B
Mic circuit
MIC 1
MIC 2
MIC ECHO/ BBD BIAS ADJ.
MIC ECHO
LEVEL (MIC 1)
LEVEL (MIC 2)
IC 201 SVINJM4559DS MIC AMP
IC 203 SVINJM4558D ECHO AMP
IC 204 MN3008 BBD
IC 205 MN3101 BBD DRIVER
IC 404 MN3008 BBD
Q201, 202 2SC1815 BUFFER
C
PANPOT (MIC 1)
IC 202 SVINJM4558DS MIXING
VR101-1 10KG
VR101-2
MIXING
J1
J2
J15
S5
SELECTOR phono aux
TP1
Q103, 104 BUFFER
D201 MA150
S1
EFFECTOR POSITION rec out source
signal level
RLY601
output signal
J12
TAPE MONITOR S2 tape source
Q101, 102, 105, 106 2SC1815 BUFFER
IC 101 SVINJM4559DS MIXING
f e d c b a
Mixing circuit

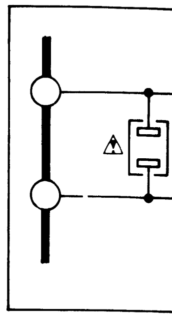

10
11
12
13
14
15
16
17
18
19
C
D
Frequency control circuit
LEVEL (MIC 1)
LEVEL (MIC 2)
PANPOT (MIC 1)
Q201, 202
2SC1815
BUFFER
IC 202
SVINJM4558DS
MIXING
VR 101-1 10KG
VR 101-2
MIXING
J15
IC 204
MN3008
BBD
IC 205
MN3101
BBD DRIVER
IC 404
MN3008
BBD
D201
MA150
IC 301
SVINJM4558DS
BPF
IC 302
SVINJM4558DS
BPF
IC 303
SVINJM4558DS
BPF
IC 304
SVINJM4558DS
BPF
IC 305
SVINJM4559DS
EQ AMP & BPF
IC 306
SVINJM4559DS
EQ AMP & BPF
IC 101
SVINJM4559DS
MIXING
VR 301-1 200KW 60Hz
VR302-1 200KW 250Hz
VR303-1 200KW 1kHz
VR304-1 200KW 4kHz
VR305-1 200KW 16kHz
VR301-2 60Hz
VR302-2 250Hz
VR303-2 1kHz
VR304-2 4kHz
VR305-2 16kHz
S1
EFFECTOR POSITION
rec out
source
signal level
output signal
J12
TAPE MONITOR
S2
tape
source
S3
EQUALIZER
on
off
Mixing circuit
15.3
-15.2
21
22

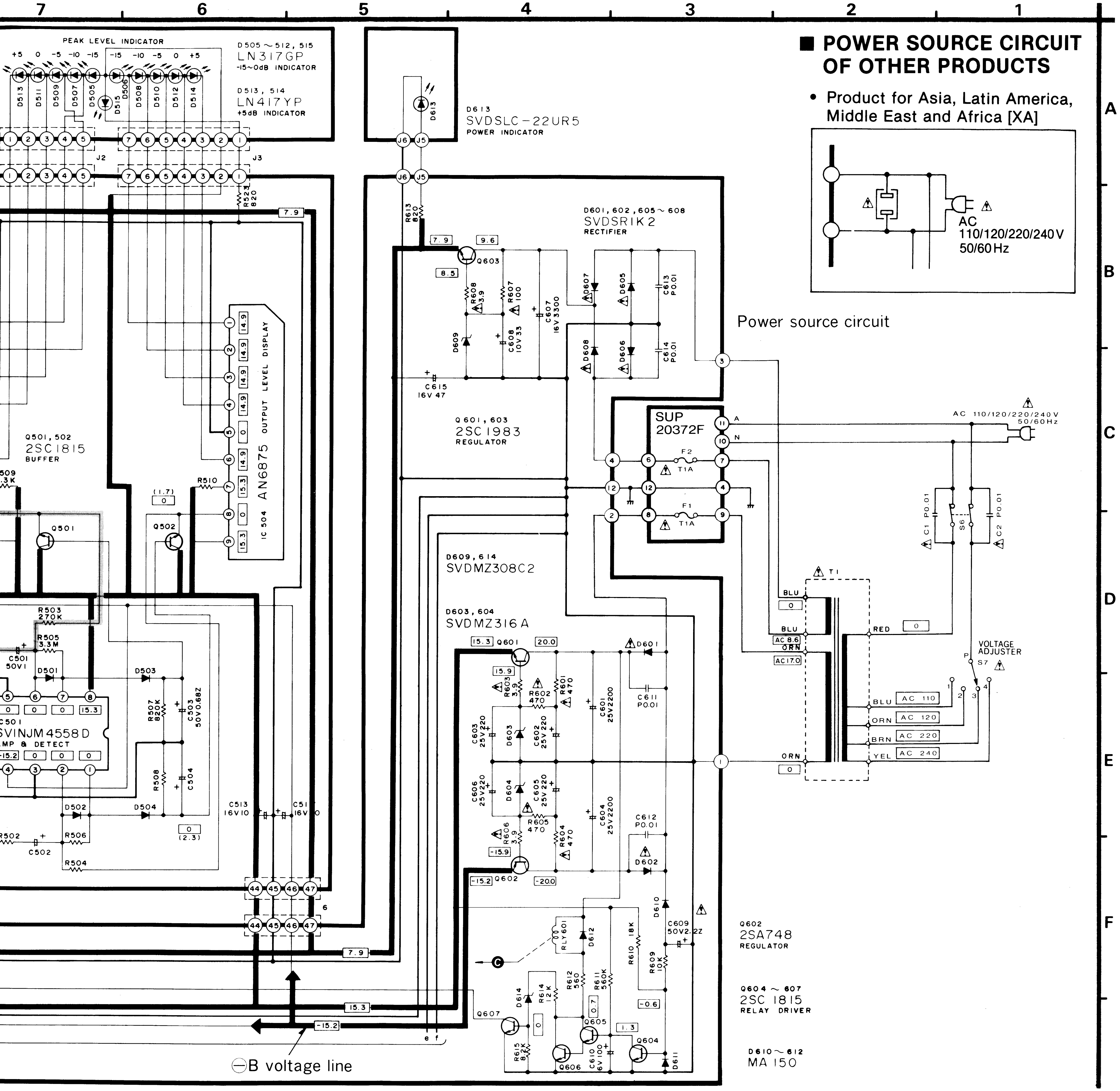

19
18
17
16
15
14
13
12
11
10
9
Dimension control circuit
Output
Q401, 402
2SC1815
PHASE SIFTER
Q403, 404
2SC1815
BUFFER
Q405, 406
2SC1815
MIXING
IC401
SVINJM4558DS
AMBIENCE AMP
IC402
SVINJM4558DS
AMBIENCE AMP
IC406
SVINJM4558DS
PHASE SHIFTER
IC403
SVINJM4558D
ECHO AMP
IC405
SVINJM4558D
NOIS REDUCTION
Q407～410
2SC1815
LPF
Q411, 412
2SC1815
MUTING
D401
MA150
D301, 402
SVDSLC-22UW5
DIMENSION INDICATOR
EQUALIZER INDICATOR
D402
D301
J10
S4
DIMENSION
on
off
AMBIENCE
DIMENSION ECHO/
BBD BIAS ADJ.
DIMENSION ECHO
VR401-1
VR401-2
VR402 10KB
R490 10KB
TP2
8V (150mA)
PL504
PL502
PL506
DIMENSION LAMP
J4
IC505
AN6875 DIMENSION DISPLAY
Q503～507
2SA684
SWITCHING
D501～504, 516
MA150
D518
SVDMZ303A
R531 2W 68
R495 1.2K
C514 M0.01
C515 M0.01
R512 82K
R511 82K
C506 50V1
C505 50V1
7.9
15.3
-15.2
14.3
-14.2
-14.5
b a
21
22


12
11
10
9
8
7
6
5
4
3
2
Output level/Dimension indicator circuits
DIMENSION INDICATOR
D402
D301
EQUALIZER INDICATOR
J10
D301, 402
SVDSLC-22UW5
S4
DIMENSION
on
off
8V (150mA)
PL504
PL502
PL506
DIMENSION LAMP
J4
8V (150mA)
PL505
PL503
PL501
DIMENSION LAMP
J1
PEAK LEVEL INDICATOR
+5 0 -5 -10 -15
-15 -10 -5 0 +5
D513
D511
D509
D507
D505
D506
D515
D508
D510
D512
D514
J2
J3
D505~512, 515
LN317GP
-15~0dB INDICATOR
D513, 514
LN417YP
+5dB INDICATOR
D613
SVDSLC-22UR5
POWER INDICATOR
J6
J5
R613 820
R523 820
7.9
9.6
8.5
Q603
R608 3.9
R607 100
C607 16V3300
D609
C608 10V33
C615 16V47
D601, 602, 605~608
SVDSRIK2
RECTIFIER
D607
D605
C613 P0.01
D608
D606
C614 P0.01
Power source circuit
Q601, 603
2SC1983
REGULATOR
SUP 20372F
F2 T1A
F1 T1A
A
N
C514 M0.01
C515 M0.01
R495 1.2K
R531 2W68
E
IC505
AN6875
DIMENSION DISPLAY
C508 16V10
Q503
C509 16V10
Q504
C510 16V10
Q505
C511 16V10
Q506
C512 16V10
Q507
C516 M0.001
R524 1W39
R525 1W39
R526 1W39
R527 1W39
R522 1K
IC503
AN6875
OUTPUT LEVEL DISPLAY
Q501, 502
2SC1815
BUFFER
R509 3.3K
Q501
Q502
R510
(1.7)
0
IC504
AN6875
OUTPUT LEVEL
15.3
14.9
7.5
D609, 614
SVDMZ308C2
D603, 604
SVDMZ316A
Q503~507
2SA684
SWITCHING
D501~504, 516
MA150
D518
SVDMZ303A
R521 18K
R518 2.7K
R520 56K
D518
R528 1K
IC502
SVINJM4558D
AMP & DETECT
-15.2
R512 82K
C506 50V1
R511 82K
C505 50V1
R513 560K
D516
R516 10K
R517 10K
R514 560K
R515 10K
C507 50V0.68Z
<4.5>
R501 27K
R503 270K
R505 3.3M
C501 50V1
D501
D503
IC501
SVINJM4558D
AMP & DETECT
R507 820K
C503 50V0.68Z
R508
C504
D502
D504
(2.3)
R502
C502
R506
R504
C513 16V10
C514 16V10
43 42 41 40
37 38 39
44 45 46 47
5
4
6
7.9
15.3
-15.2
b a
c d
e f
⊖B voltage line
22
23
C430 50V3.3
C429 K0.15
R476 1.5K
R477 390
(0.6) Q411
Q412 (0.6)
R482 10K
R484 33K
R483 33K
VR402 10KB
C432 25V4.7
D401
MA150
DIMENSION ECHO
15.3 Q601 20.0
15.9
R603 3.9
R602 470
R601 470
C601 25V2200
D601
C611 P0.01
C603 25V220
D603
C602 25V220
C606 25V220
D604
C605 25V220
R605 470
R606 3.9
R604 470
C604 25V2200
C612 P0.01
D602
-15.9
-15.2 Q602
-20.0
RLY601
D612
D610
R610 18K
R609 10K
C609 50V2.2Z
-0.6
D614
R614 12K
R612 56
R611 560K
Q607
Q605
Q604
R615 8K
Q606
C610 10V100
D611
1.3
0.7
Q602
2SA748
REGULATOR
Q604~607
2SC1815
RELAY DRIVER
D610~612
MA150
T1
BLU
RED
AC8.6
ORN
AC17.0
BLU
ORN
BRN
YEL
ORN

■ POWER
OF OTH

- Product f
  Middle Ea




7
6
5
4
3
2
1
A
B
C
D
E
F
PEAK LEVEL INDICATOR
+5 +3 0 -5 -10 -15
-15 -10 -5 0 +5
D505 ~ 512, 515
LN317GP
-15~0dB INDICATOR
D513, 514
LN417YP
+5dB INDICATOR
D513
D511
D509
D507
D505
D506
D515
D508
D510
D512
D514
J2
J3
D613
SVDSLC-22UR5
POWER INDICATOR
J6
J5
R613 820
R523 820
7.9
9.6
8.5
Q603
R608 3.9
R607 100
C607 16V3300
D609
C608 10V33
C615 16V 47
D601, 602, 605 ~ 608
SVDSR1K2
RECTIFIER
D607
D605
D608
D606
C613 P0.01
C614 P0.01
Q601, 603
2SC1983
REGULATOR
SUP
20372F
F2
T1A
F1
T1A
A
N
AC 110/120/220/240V
50/60Hz
C1 P0.01
S6
C2 P0.01
T1
BLU
BLU
AC 8.6
ORN
AC 17.0
RED
VOLTAGE
ADJUSTER
S7
P
BLU
AC 110
ORN
AC 120
BRN
AC 220
YEL
AC 240
ORN
Q501, 502
2SC1815
BUFFER
IC 504
AN6875
OUTPUT LEVEL DISPLAY
14.9
15.3
R510
(1.7)
Q501
Q502
R503 270K
R505 3.3M
C501 50V1
D501
D503
R507 820K
C503 50V0.682
SVINJM4558D
C501
-15.2
R508
C504
D502
D504
R506
C502
R504
(2.3)
C513 16V10
C51 16V
44 45 46 47
e f
⊖B voltage line
D609, 614
SVDMZ308C2
D603, 604
SVDMZ316A
15.3
Q601
20.0
15.9
R603 3.9
R602 470
R601 470
D601
C611 P0.01
C601 25V2200
C603 25V220
D603
C602 25V220
C606 25V220
D604
C605 25V220
R606 3.9
R605 470
R604 470
C604 25V2200
C612 P0.01
D602
-15.9
Q602
-15.2
-20.0
D610
C609 50V2.2Z
R610 18K
R609 10K
RLY601
D612
R612 560
R611 560K
D614
R614 12K
Q607
R615 8.2K
Q606
C610 6V100
0.7
Q605
1.3
Q604
-0.6
D611
Q602
2SA748
REGULATOR
Q604 ~ 607
2SC1815
RELAY DRIVER
D610 ~ 612
MA150
AC
110/120/220/240V
50/60Hz

POWER SOURCE CIRCUIT OF OTHER PRODUCTS

- Product for Asia, Latin America, Middle East and Africa [XA]

Power source circuit

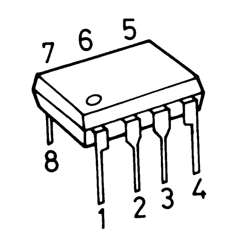
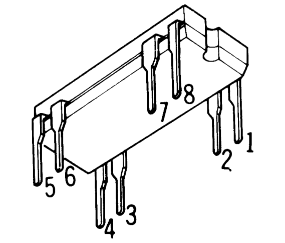
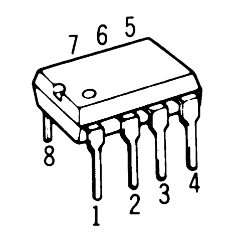
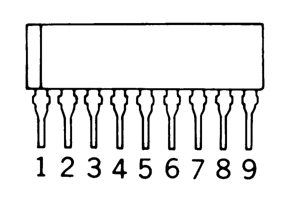
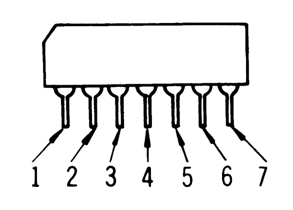
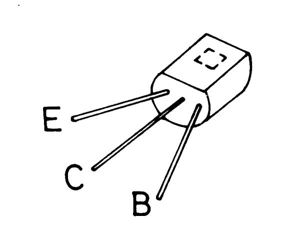
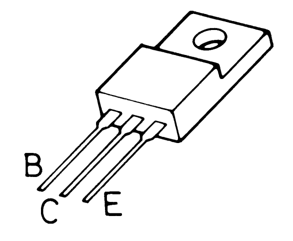
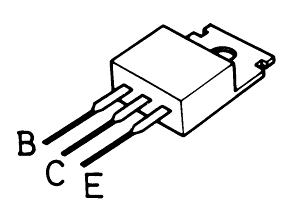
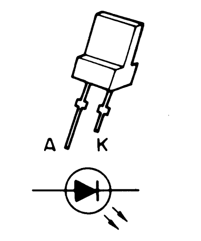
SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

1. **S1** : Effector position switch in "**source**" position.
   ■ (source), ▬ (rec out)
2. **S2** : Tape monitor switch in "**source**" position.
   ■ (source), ▬ (tape)
3. **S3** : Equalizer switch in "**off**" position.
   ■ (off), ▬ (on)
4. **S4** : Dimension switch in "**off**" position.
   ■ (off), ▬ (on)
5. **S5** : Selector switch in "**aux**" position.
   ■ (aux) ▬ (phono)
6. **S6** : Power switch in "**on**" position.
7. **S7** : Voltage adjuster switch in "**220V**" position.
   110V◄►120V◄►220V◄►240V
8. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.
   Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
   - * Figures in ▭ stand for DC voltage in non signal.
   - * Figures in ( ) stand for DC voltage in 1kHz·150mV at line output both channel.
   - * Figures in ‹ › stand for DC voltage in 1kHz·150mV at line output L channel (dimension switch in "**on**" position, ambience control volume in "**max**").
9. Signal line
   ➡ Audio frequency (Lch) ━ ⊕ B voltage line
   ⇨ Mic signal
10. ⚠ indicates that only parts specified by the manufacturer be used for safety.

- **Terminal guide of transistors and IC's**

SVINJM4559, SVINJM4558	MN3008	MN3101
		
AN6875	SVITA7136	2SC1815, 2SA684
		
2SC1983	2SA748	LN317GP, LN47YP
		

■ REPLACEMENT PARTS LIST
(Cabinet and Chassis Parts)

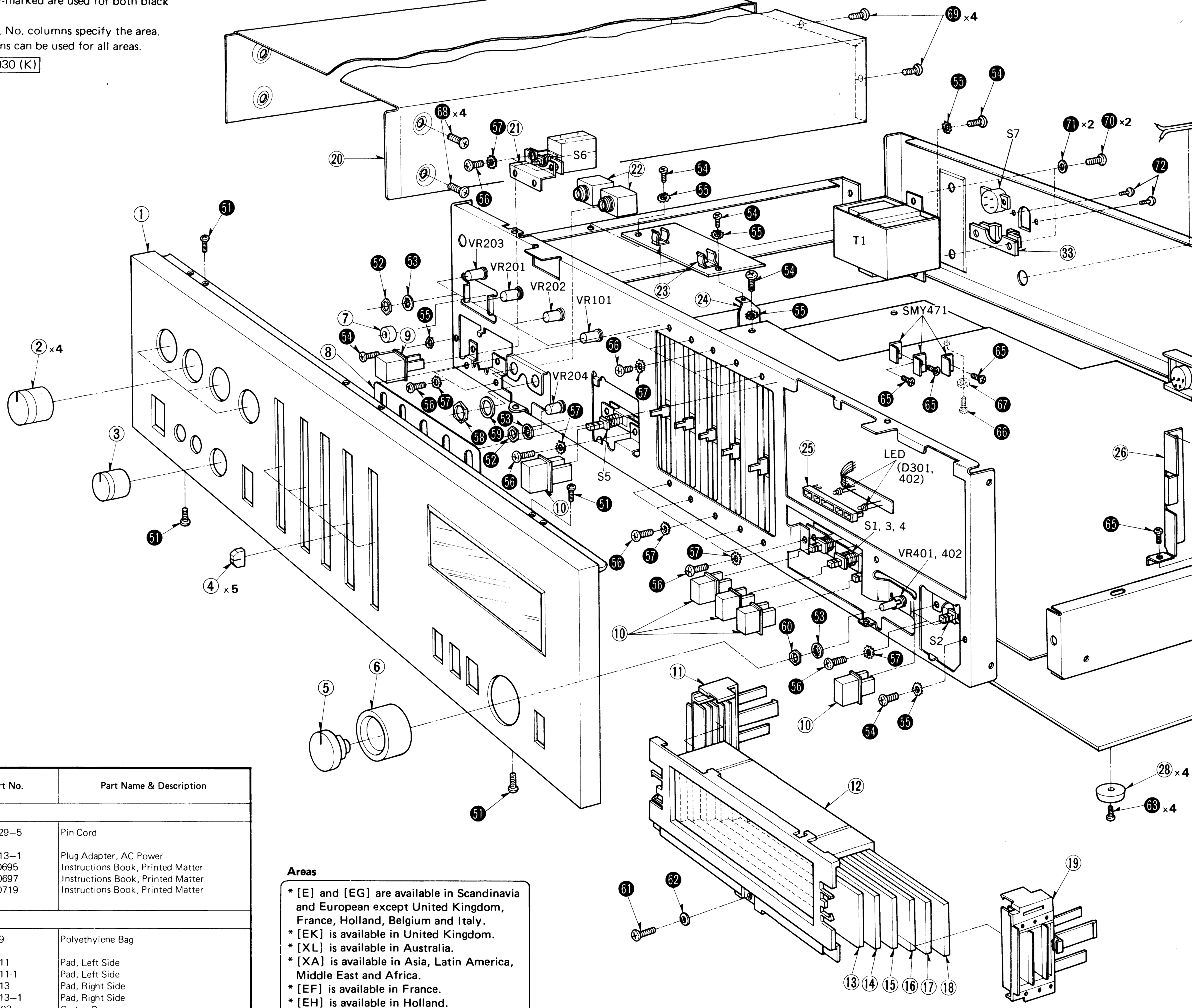
Notes:
1. Parts numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. ⚠ indicates that only parts specified by the manufacturer be used for safety.
3. Ⓚ-marked parts are used for black type only, while ○-marked parts are for silver type only.
4. Parts other than Ⓚ- and ○-marked are used for both black and silver types.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Black type model No. SH-8030 (K)

Ref. No.		Part No.	Part Name & Description
CABINET and CHASSIS PARTS			
1	○	SYW353	Front Panel
1	Ⓚ	SYW353–1	Front Panel (Black)
2		SBN983	Knob, Panport, Mic, Mixing
3		SBN985	Knob, Echo
4		SBC333	Button, Frequency Equalizer
5		SBN987	Knob, Dimension Control
6		SBN989	Knob, Dimension Control
7		SHG1579	Spacer, Power L.E.D.
8		SHS1041	Felt
9		SBC337	Button, Power
10		SBC339	Button, Push Switch
11		SGXH8030N	Reflector Plate
12		SGX6941	Case, Dimension Control
13		SDL27	Panel, Dimension
14		SDL29	Panel, Dimension
15		SDL31	Panel, Dimension
16		SDL33	Panel, Dimension
17		SDL35	Panel, Dimension
18		SDL37	Panel, Dimension
19		SGXH8030N1	Reflector Plate
20	○	SKC610S1	Cabinet Cover
20	Ⓚ	SKC610B1	Cabinet Cover (Black)
21		SUW1745	Bracket, Power Switch
22		XCJS6P21E–A	Jack, Headphone
23		SJT347	Terminal, Fuse
24		SUW1731	Bracket, Fuse P.C.B. Ass'y
25		SMP297	Holder, L.E.D.
26		SUW1737	Bracket, Equalizer P.C.B. Ass'y
27		SKUH8030M	Bottom Board
28		SKL227	Foot
29		SJF3045–7N	Terminal Board
30 [E] only		SGP2490–1A	Rear Panel
30		SGPH8030E	Rear Panel
30 [X, XA] only		SGP2490–2A	Rear Panel
31		SHR127	Bushing, AC Cord
31 [EK] only		SHR129	Bushing, AC Cord
31	⚠	**SJA88**	AC Cord
32 [EK] only	⚠	**QFC1205M**	AC Cord
32 [XL] only	⚠	**QFC1208M**	AC Cord
33		SMN1635	Bracket, Voltage Adjustment Switch
34 [X, XA] only	⚠	SJSA66–2	Socket, AC Outlet
SCREWS, WASHERS and NUTS			
(51)		**XTB3+8B**	Screw, Tapping, ⊕ 3 x 8
(52)		**XNS8**	Nut, M8
(53)		**XWC9B**	Washer, External Toothed Lock, ϕ9
(54)		**XTB3+8BFZ**	Screw, Tapping, ⊕ 3 x 8
(55)		**XWC3B**	Washer, External Toothed Lock, ϕ3
(56)		**XSN3+6BVS**	Screw, ⊕ 3 x 6
(57)		**XWC3B**	Washer, External Toothed Lock, ϕ3
(58)		**XNS12**	Nut, M12
(59)		SNE59–1	Washer
(60)		**XNS9**	Nut, M9
(61)		**XTN3+10B**	Screw, Tapping, ⊕ 3 x 10
(62)		**XWG3**	Washer, Plain, ϕ3
(63)		**XTB3+10BFZ**	Screw, Tapping, ⊕ 3 x 10
(64)		**XTB3+8BFN**	Screw, Tapping, ⊕ 3 x 8
(65)		**XTB3+8B**	Screw, Tapping, ⊕ 3 x 8
(66)		**XSN3+8S**	Screw, ⊕ 3 x 8
(67)		**XWA3B**	Washer, Spring, ϕ3
(68)	○	**XTB4+8BFN**	Screw, Tapping, ⊕ 4 x 8
(68)	Ⓚ	**XTB4+8BFZ**	Screw, Tapping, ⊕ 4 x 8
(69)	○	**XTB3+8BFN**	Screw, Tapping, ⊕ 3 x 8
(69)	Ⓚ	**XTB3+8BFZ**	Screw, Tapping, ⊕ 3 x 8
(70)		**XSN4+10BVS**	Screw, ⊕ 4 x 10
(71)		**XWA3B**	Washer, Spring, ϕ3
(72)		XTB3+16BFZ	Screw, Tapping, ⊕ 3 x 16

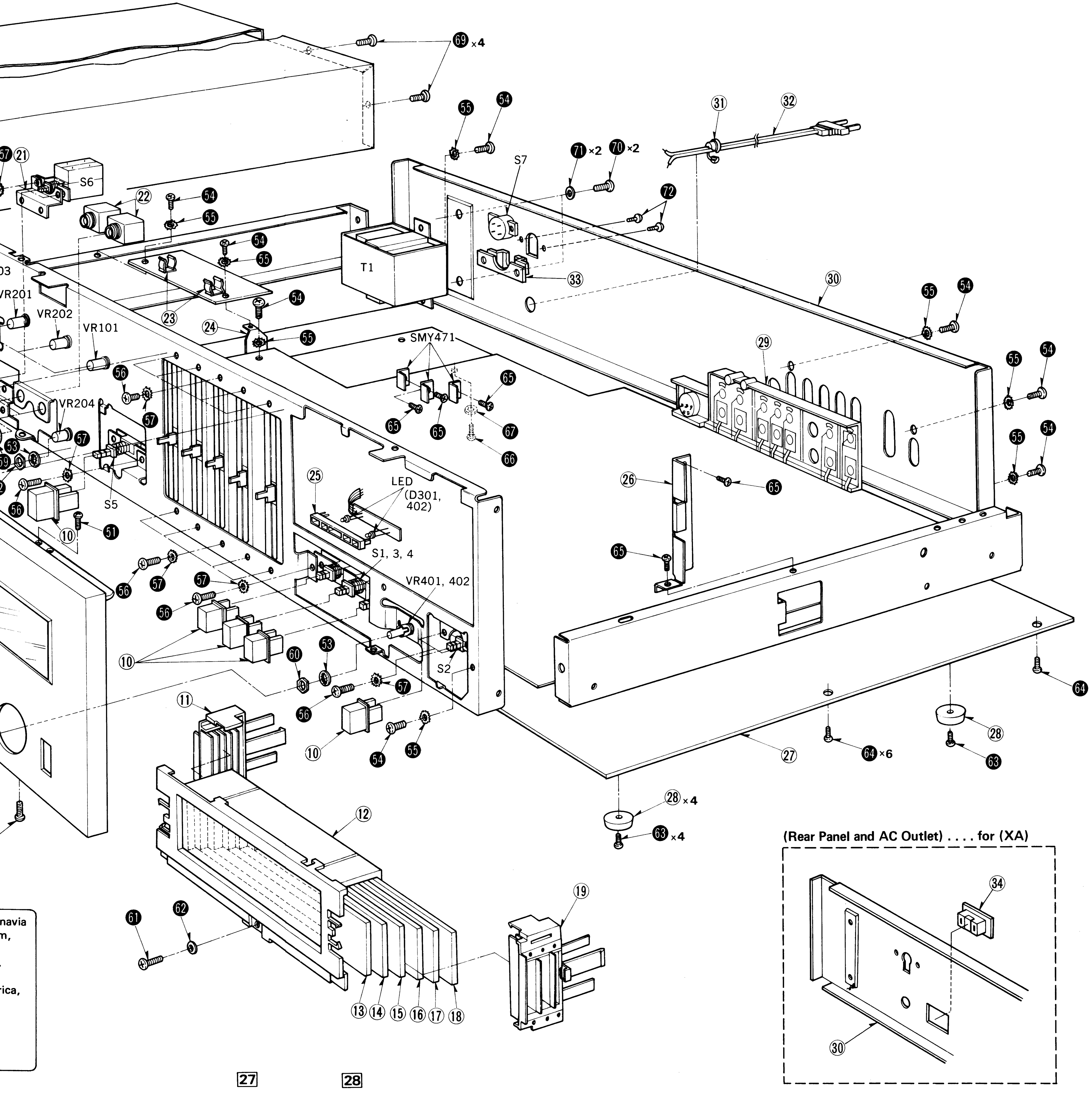
Ref. No.		Part No.	Part Name & Description
ACCESSORIES			
A1		SJP2129–5	Pin Cord
A2 [X, XA] only	⚠	SJP5213–1	Plug Adapter, AC Power
A3		SQF10695	Instructions Book, Printed Matter
A3 [X, XA] only		SQF10697	Instructions Book, Printed Matter
A3 [EI] only		SQF10719	Instructions Book, Printed Matter
PACKING PARTS			
P1		SPP649	Polyethylene Bag
P2		SPS3011	Pad, Left Side
P2 [XL] only		SPS3011-1	Pad, Left Side
P3		SPS3013	Pad, Right Side
P3 [XL] only		SPS3013–1	Pad, Right Side
P4		SPG2903	Carton Box
P4 [XL] only		SPG2905	Carton Box
P4 [EF] only		SPG2907	Carton Box

■ EXPLODED VIEW



Areas

- * [E] and [EG] are available in Scandinavia and European except United Kingdom, France, Holland, Belgium and Italy.
- * [EK] is available in United Kingdom.
- * [XL] is available in Australia.
- * [XA] is available in Asia, Latin America, Middle East and Africa.
- * [EF] is available in France.
- * [EH] is available in Holland.
- * [EB] is available in Belgium.
- * [EI] is available in Italy.

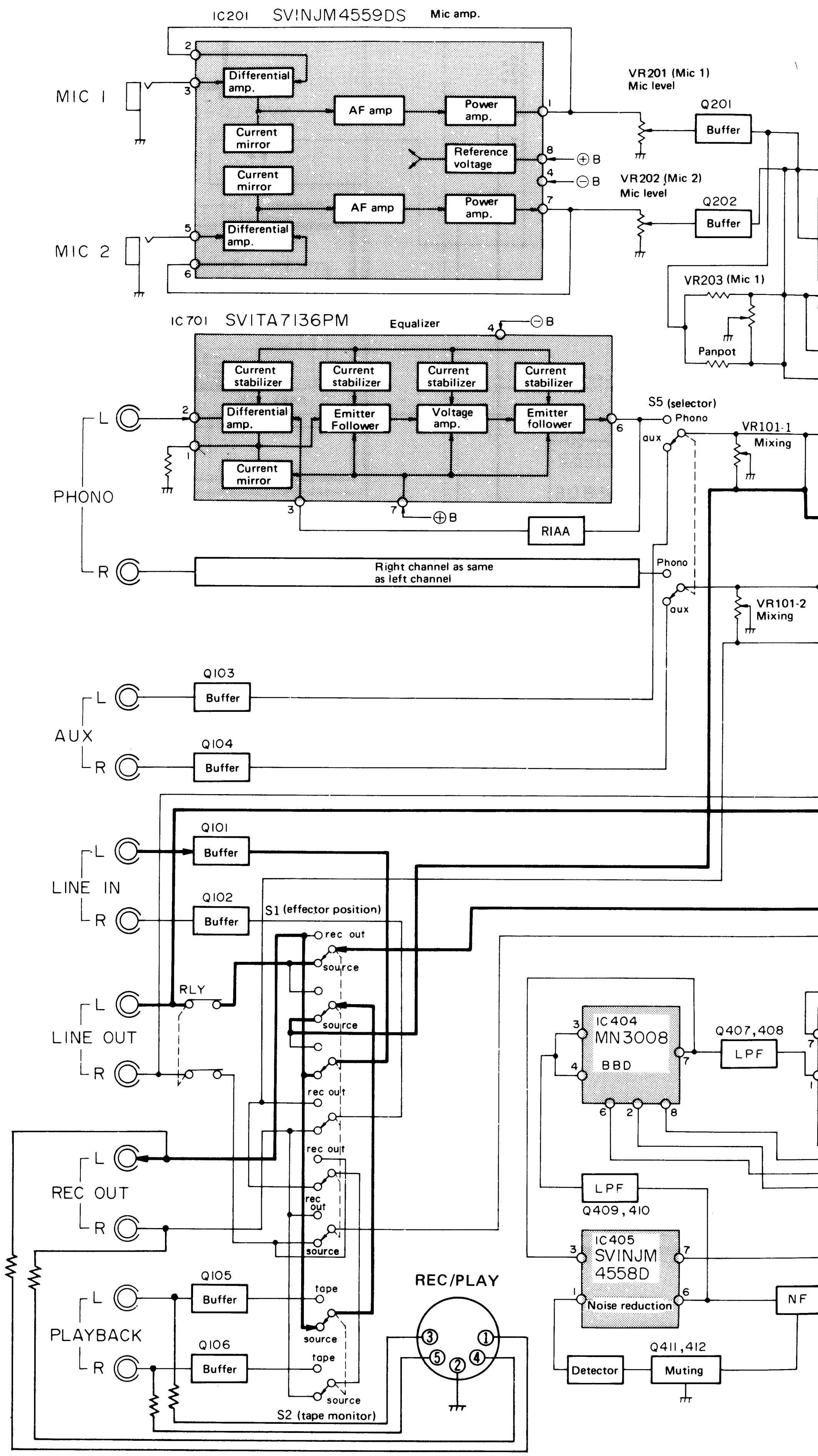

㊾ ×4
㊺
㊹
(71) ×2
(70) ×2
㉛
㉜
S7
(72)
㉑
S6
㉒
㊹
㊺
T1
㉝
㉚
㉓
㉔
VR201
VR202
VR101
SMY471
㉙
(56)
(57)
(65)
(67)
(66)
VR204
(53)
(59)
⑩
(51)
S5
㉕
LED (D301, 402)
㉖
S1, 3, 4
VR401, 402
(60)
S2
(64)
⑪
㉘
(63)
(64) ×6
㉗
⑫
㉘ ×4
(63) ×4
⑲
(61)
(62)
⑬ ⑭ ⑮ ⑯ ⑰ ⑱

(Rear Panel and AC Outlet) . . . . for (XA)

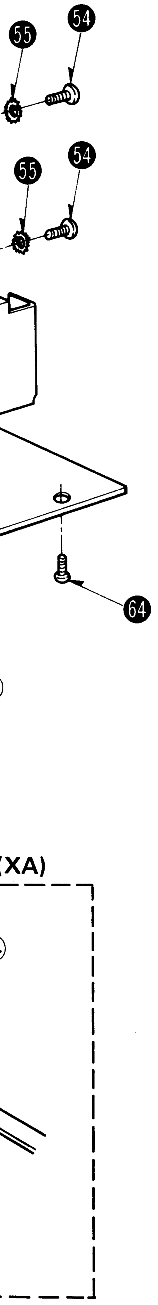
㉞
㉚

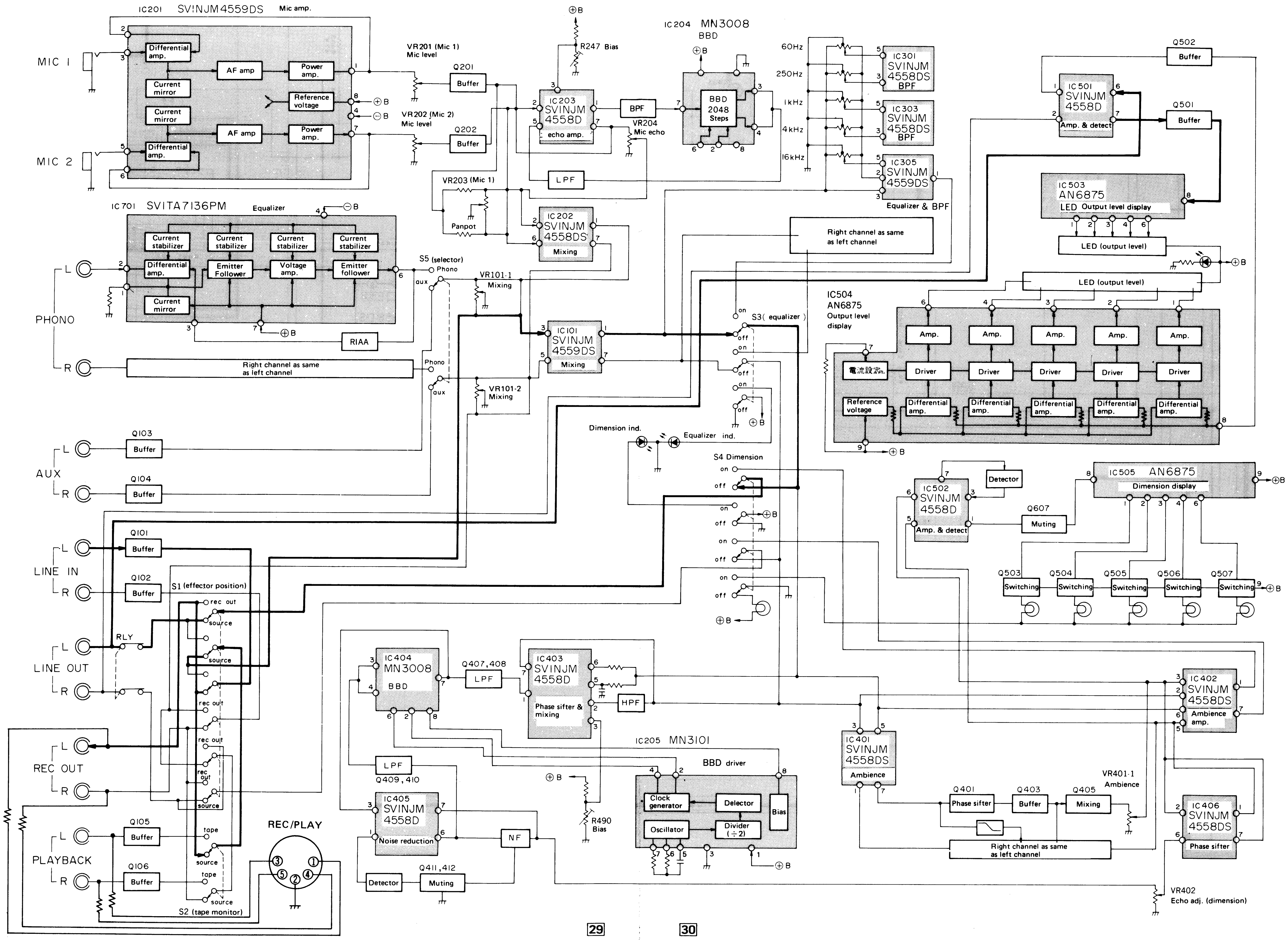
navia
m,
.
rica,

BLOCK DIAGRAM


IC201 SVINJM4559DS Mic amp.
MIC 1
MIC 2
Differential amp.
AF amp
Power amp.
Current mirror
Reference voltage
⊕B
⊖B
VR201 (Mic 1) Mic level
Q201
Buffer
VR202 (Mic 2) Mic level
Q202
Buffer
VR203 (Mic 1)
Panpot
IC701 SVITA7136PM
Equalizer
Current stabilizer
Differential amp.
Emitter Follower
Voltage amp.
Emitter follower
Current mirror
RIAA
PHONO
L
R
S5 (selector)
Phono
aux
VR101-1 Mixing
Right channel as same as left channel
VR101-2 Mixing
Q103
Buffer
AUX
Q104
Buffer
Q101
Buffer
LINE IN
Q102
Buffer
S1 (effector position)
rec out
source
RLY
LINE OUT
REC OUT
PLAYBACK
Q105
Buffer
Q106
Buffer
tape
source
S2 (tape monitor)
REC/PLAY
IC404
MN3008
BBD
Q407,408
LPF
LPF
Q409,410
IC405
SVINJM 4558D
Noise reduction
NF
Detector
Muting
Q411,412

■ BLOCK DIAGRAM


55
54
55
54
64
(XA)


IC201 SVINJM4559DS Mic amp.
MIC 1
MIC 2
Differential amp.
Current mirror
AF amp
Power amp.
Reference voltage
⊕B
⊖B
VR201 (Mic 1) Mic level
VR202 (Mic 2) Mic level
Q201 Buffer
Q202 Buffer
⊕B
R247 Bias
IC203 SVINJM 4558D echo amp.
BPF
VR204 Mic echo
LPF
IC204 MN3008 BBD
BBD 2048 Steps
VR203 (Mic 1)
Panpot
IC202 SVINJM 4558DS Mixing
60Hz
250Hz
1kHz
4kHz
16kHz
IC301 SVINJM 4558DS BPF
IC303 SVINJM 4558DS BPF
IC305 SVINJM 4559DS
Equalizer & BPF
Right channel as same as left channel
IC701 SVITA7136PM Equalizer
Current stabilizer
Differential amp.
Emitter Follower
Voltage amp.
Emitter follower
RIAA
PHONO
L
R
S5 (selector)
Phono
aux
VR101-1 Mixing
VR101-2 Mixing
IC101 SVINJM 4559DS Mixing
S3 (equalizer)
on
off
Dimension ind.
Equalizer ind.
S4 Dimension
AUX
Q103 Buffer
Q104 Buffer
LINE IN
Q101 Buffer
Q102 Buffer
S1 (effector position)
rec out
source
LINE OUT
RLY
REC OUT
PLAYBACK
Q105 Buffer
Q106 Buffer
tape
S2 (tape monitor)
REC/PLAY
Q502 Buffer
Q501 Buffer
IC501 SVINJM 4558D Amp. & detect
IC503 AN6875 LED Output level display
LED (output level)
IC504 AN6875 Output level display
Amp.
Driver
電流設定
Reference voltage
Differential amp.
IC502 SVINJM 4558D Amp. & detect
Detector
Q607 Muting
IC505 AN6875 Dimension display
Q503 Switching
Q504 Switching
Q505 Switching
Q506 Switching
Q507 Switching
IC404 MN3008 BBD
Q407,408 LPF
IC403 SVINJM 4558D Phase sifter & mixing
HPF
LPF Q409,410
IC405 SVINJM 4558D Noise reduction
NF
Detector
Q411,412 Muting
R490 Bias
IC205 MN3101 BBD driver
Clock generator
Delector
Oscillator
Divider (÷2)
Bias
IC401 SVINJM 4558DS Ambience
IC402 SVINJM 4558DS Ambience amp.
Q401 Phase sifter
Q403 Buffer
Q405 Mixing
VR401-1 Ambience
IC406 SVINJM 4558DS Phase sifter
VR402 Echo adj. (dimension)